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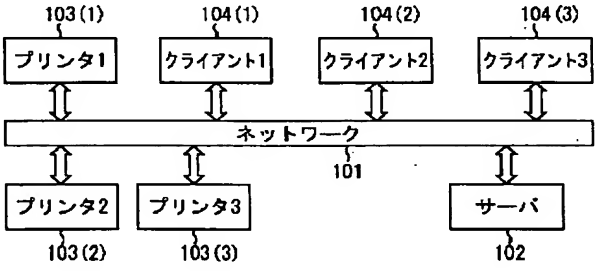
(54)【発明の名称】　情報処理装置、ネットワークシステム、課金方法、データ処理制御方法、及び記憶媒体

(57)【要約】
【課題】　複雑で柔軟性に富んだ課金システムを構築する場合であっても、十分な課金機能を提供することができるネットワークシステムを提供する。
【解決手段】　プリンタ１０３（Ｘ）は、クライアント１０４（Ｘ）より依頼されたデータ処理を実行すると共に、当該データ処理の実行に対する課金処理を、クライアント１０４（Ｘ）からの処理対象データに付加された課金対象者情報により示される課金対象者に対して、自装置１０３（Ｘ）或いはサーバ１０２によって実行する。



【請求項１３】　クライアント側が任意のデータ処理を外部装置或いはシステムへ依頼して当該データ処理を実行する際に、当該データ処理の実行に対して課金処理を行うための課金方法であって、
上記クライアント側が上記課金処理の対象者に関する情報を付加した処理対象データを上記他の装置或いはシステムへ送信する送信ステップと、
上記外部装置或いはシステムで受信された処理対象データの課金処理対象者情報に基づいて、上記課金処理を実行する課金ステップとを含むことを特徴とする課金方法。
【請求項１４】　クライアント側が任意のデータ処理を外部の装置或いはシステムへ依頼して当該データ処理を実行する際に、当該データ処理の実行及び当該データ処理の実行に対する課金処理を行うためのデータ処理制御方法であって、
上記他の装置或いはシステムで受信された処理対象データに対して付加された、上記課金処理の対象者に関する情報、及び上記外部装置或いはシステムでデータ処理することが許される有効期限の情報の少なくとも何れかの情報に基づいて、上記課金処理及び上記データ処理の少なくとも何れかを実行する処理ステップを含むことを特徴とするデータ処理制御方法。
【請求項１５】　上記処理対象データに付加された有効期限情報により示される有効期限外に上記データ処理の実行の依頼がなされた場合には、上記データ処理の実行を抑止する制御ステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項１６】　上記処理ステップは、上記処理対象データに上記課金対象者情報が付加されている場合、上記データ処理の依頼者によらず、上記課金対象者情報により示される対象者に対する課金処理を実行するステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項１７】　上記処理ステップは、上記処理対象データに上記課金対象者情報が付加されていない場合、上記データ処理の依頼者を上記課金処理の対象者とみなし、当該対象者に対する課金処理を実行するステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項１８】　複数の課金対象者毎に、上記データ処理の実行における資源使用許容量、及び上記データ処理の実行の過程での資源使用量を管理する管理ステップと、
上記処理対象データに付加された課金対象者情報により示される課金対象者について、上記データ処理の実行の過程で上記資源使用量が上記資源使用許容量にを越えた場合、その時点で上記データ処理の実行を中断する、或いは上記課金対象者を上記データ処理の依頼者とする、或いは超過分を別途管理して上記データ処理の実行を継続するよう制御する制御ステップとを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項１９】　上記処理ステップは、上記処理対象データを構成する各データの特定の条件毎に課金対象者を個別に設定し、当該設定条件に基づいて、上記処理対象データに対するデータ処理の実行に伴って課金対象者を変えるステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２０】　上記処理ステップは、上記処理対象データを構成する各データ毎に課金対象者を個別に設定し、当該設定条件に基づいて、上記処理対象データに対するデータ処理の実行に伴って課金対象者を変えるステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２１】　複数の課金対象者情報を管理する管理ステップと、
上記処理対象データに付加された課金対象者情報に該当する情報が上記管理ステップで管理されていない場合には、上記処理対象データに対するデータ処理の実行を抑止するよう制御する制御ステップとを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２２】　複数の処理対象データ毎に処理可能回数を管理する管理ステップと、
上記他の装置或いはシステムで受信された処理対象データに対するデータ処理を、上記管理ステップで管理されている上記処理対象データの処理可能回数内で許可すると共に、上記処理可能回数をデータ処理の実行毎にデクリメントし、上記データ処理の実行の回数が上記処理可能回数を超えた場合には、上記データ処理の実行を抑止するよう制御する制御ステップとを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２３】　上記処理ステップは、上記処理対象データに対するデータ処理の実行で発生する資源使用量に基づいた課金率で課金処理を実行するステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２４】　複数の課金対象者毎の課金率を管理する管理ステップを含み、
上記処理ステップは、上記管理ステップで管理されている上記処理対象データに付加された課金対象者情報に該当する課金率で課金処理を実行するステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２５】　複数の課金対象者毎に、上記データ処理の実行における資源使用許容量の一部又は全部を他の課金対象者へ譲渡するための情報を管理する管理ステップを含むことを特徴とする請求項１４記載のデータ処理制御方法。
【請求項２６】　請求項１～１１の何れかに記載の情報処理装置の機能、又は請求項１２記載のネットワークシステムの機能を実施するための処理プログラムを、コンピュータが読出可能に格納したことを特徴とする記憶媒

上記処理対象データを構成する各データの条件を、複数の課金処理の対象者毎に管理する管理手段とを備え、上記課金手段は、上記管理手段の管理情報に基づいて、上記処理対象データを構成する各データに対する上記データ処理の実行に伴い上記課金処理の対象者を変えることを特徴とする。

【００１２】第８の発明は、上記第２の発明において、上記データ処理の実行を制御する制御手段と、複数の課金処理の対象者に関する情報を管理する管理手段とを備え、上記制御手段は、上記処理対象データの課金処理対象者情報に該当する対象者の情報が上記管理手段で管理されているか否かに基づいて、上記データ処理の実行を制御することを特徴とする。

【００１３】第９の発明は、上記第２の発明において、上記データ処理の実行を制御する制御手段と、複数の処理対象データ毎に、上記データ処理の実行可能回数を管理する管理手段とを備え、上記制御手段は、上記受信手段で受信された処理対象データに対するデータ処理の実行の回数が、上記管理手段にて管理されている当該処理対象データに対応する実行可能回数を超えたか否かに基づいて、上記データ処理の実行を制御することを特徴とする。

【００１４】第１０の発明は、上記第２の発明において、上記データ処理の実行を制御する制御手段と、上記データ処理の実行に伴って発生する資源使用量に応じた課金率を管理する管理手段とを備え、上記制御手段は、上記管理手段の管理情報に基づいて、上記データ処理の実行で発生した資源使用量に対応する課金率で課金処理を実行することを特徴とする。

【００１５】第１１の発明は、上記第２の発明において、上記データ処理の実行を制御する制御手段と、複数の課金処理の対象者毎に課金率を管理する管理手段とを備え、上記制御手段は、上記管理手段で管理されている上記課金処理対象者情報に対応した対象者の課金率で課金処理を実行することを特徴とする。

【００１６】第１２の発明は、複数の機器がネットワークを介して互いに通信可能に接続されてなるネットワークシステムであって、上記複数の機器のうち少なくとも１つの機器は、請求項１～１１の何れかに記載の情報処理装置の機能を有することを特徴とする。

【００１７】第１３の発明は、クライアント側が任意のデータ処理を外部装置或いはシステムへ依頼して当該データ処理を実行する際に、当該データ処理の実行に対して課金処理を行うための課金方法であって、上記クライアント側が上記課金処理の対象者に関する情報を付加した処理対象データを上記他の装置或いはシステムへ送信する送信ステップと、上記外部装置或いはシステムで受信された処理対象データの課金処理対象者情報に基づいて、上記課金処理を実行する課金ステップとを含むことを特徴とする。

【００１８】第１４の発明は、クライアント側が任意のデータ処理を外部の装置或いはシステムへ依頼して当該データ処理を実行する際に、当該データ処理の実行及び当該データ処理の実行に対する課金処理を行うためのデータ処理制御方法であって、上記他の装置或いはシステムで受信された処理対象データに対して付加された、上記課金処理の対象者に関する情報、及び上記外部装置或いはシステムでデータ処理することが許される有効期限の情報の少なくとも何れかの情報に基づいて、上記課金処理及び上記データ処理の少なくとも何れかを実行する処理ステップを含むことを特徴とする。

【００１９】第１５の発明は、上記第１４の発明において、上記処理対象データに付加された有効期限情報により示される有効期限外に上記データ処理の実行の依頼がなされた場合には、上記データ処理の実行を抑止する制御ステップを含むことを特徴とする。

【００２０】第１６の発明は、上記第１４の発明において、上記処理ステップは、上記処理対象データに上記課金対象者情報が付加されている場合、上記データ処理の依頼者によらず、上記課金対象者情報により示される対象者に対する課金処理を実行するステップを含むことを特徴とする。

【００２１】第１７の発明は、上記第１４の発明において、上記処理ステップは、上記処理対象データに上記課金対象者情報が付加されていない場合、上記データ処理の依頼者を上記課金処理の対象者とみなし、当該対象者に対する課金処理を実行するステップを含むことを特徴とする。

【００２２】第１８の発明は、上記第１４の発明において、複数の課金対象者毎に、上記データ処理の実行における資源使用許容量、及び上記データ処理の実行の過程での資源使用量を管理する管理ステップと、上記処理対象データに付加された課金対象者情報により示される課金対象者について、上記データ処理の実行の過程で上記資源使用量が上記資源使用許容量にを越えた場合、その時点で上記データ処理の実行を中断する、或いは上記課金対象者を上記データ処理の依頼者とする、或いは超過分を別途管理して上記データ処理の実行を継続するよう制御する制御ステップとを含むことを特徴とする。

【００２３】第１９の発明は、上記第１４の発明において、上記処理ステップは、上記処理対象データを構成する各データの特定の条件毎に課金対象者を個別に設定し、当該設定条件に基づいて、上記処理対象データに対するデータ処理の実行に伴って課金対象者を変えるステップを含むことを特徴とする。

【００２４】第２０の発明は、上記第１４の発明において、上記処理ステップは、上記処理対象データを構成する各データ毎に課金対象者を個別に設定し、当該設定条件に基づいて、上記処理対象データに対するデータ処理の実行に伴って課金対象者を変えるステップを含むこと

したものである。

【００４０】プリンタ１０３（Ｘ）は、上記図２に示すように、操作部２０２、プリントデータ解析部２０３、一時記憶部２０４、二次記憶部２０５、プリントエンジン２０６のコントローラ（エンジンコントローラ）２０７、ネットワークアダプタ２０９のプロトコル解析部２０８、ユーザ管理部２１０、課金管理部２１１、ＰＤＬ解釈部２１２、及びメインコントローラ２１３を備え、これらの各構成部（モジュール）２０２～２１３は、データやコントロール信号等の送受信を媒介するシステムバス２０１を介して互いに通信可能なように接続されている。

【００４１】尚、上記図２に示したプリンタ１０３（Ｘ）の内部構成は、本実施の形態の説明に用いた構成の一例であり、本発明の請求項に記載の構成を満たす限りは、如何なる構成を取った場合でも本発明は適用される。

【００４２】操作部２０２は、単数或いは複数のキー及び表示部を含み、ユーザのプリンタ１０３（Ｘ）に対する各種操作の入出力を行うための操作がなされる部分である。

【００４３】一次記憶部２０４及び二次記憶部２０５はそれぞれ、プリンタ１０３（Ｘ）が印刷処理に使用したり、プリンタ１０３（Ｘ）が使用する各種データを一時的或いは長期的に蓄積するために用いる半導体記憶手段や磁気記録手段等を含むものである。

【００４４】ネットワークアダプタ２０９は、ネットワーク１０１上の外部機器とのデータの送受信を行うためのものである。プロトコル解析部２０８は、ネットワークアダプタ２０９が受信したデータをサポートするプロトコルに応じて処理し、プリンタ１０３（Ｘ）内で処理可能な形式に変換する機能を有する。

【００４５】尚、プロトコル解析部２０８により得られるデータ変換後のデータが、本発明の請求項で言及した「処理対象データ」（以下、「印刷対象データ」とも言う）である。このデータの詳細については後述する。但し、ネットワークアダプタ２０９及びプロトコル解析部２０８の詳細な機能については、本発明の本質ではないので省略する。

【００４６】ＰＤＬ解釈部２１２は、印刷対象データ（ＰＤＬデータ）をイメージデータに変換する機能を有する。ＰＤＬ解釈部２１２にて得られたイメージデータは、エンジンコントローラ２０７を介してプリントエンジン２０６に送られることによって、物理的な印刷処理が行われる。尚、ＰＤＬ解釈部２１２の詳細な機能については、本発明の本質ではないので省略する。

【００４７】プリントデータ解析部２０３は、プロトコル解析部２０８から供給される印刷対象データを解析することで、当該データから課金対象者情報、有効期限情報、及びＰＤＬデータ等の情報を分離する機能を有する。

【００４８】課金管理部２１１は、プリンタ１０３（Ｘ）の動作における課金処理を実行するための構成であるが、上述したように、本実施の形態では、当該構成をサーバ１０２へ持たせる形態を取っているため、本実施の形態での課金管理部２１１は、サーバ１０２内の後述する課金管理部に対するアクセス手段のみを提供している。

【００４９】ユーザ管理部２１０は、ユーザ管理処理を実行する構成であるが、これについても課金管理部２１１と同様に、本実施の形態では、当該構成をサーバ１０２へ持たせる形態を取っているため、本実施の形態でのユーザ管理部２１０は、サーバ１０２内の後述するユーザ管理部に対するアクセス手段のみを提供している。

【００５０】尚、当然の事ながら、プリンタ１０３（Ｘ）の課金管理部２１１及びユーザ管理部２１０に対して、サーバ１０２が有する課金管理部及びユーザ管理部と同様の機能を直接実装した場合においても本発明は適用される。

【００５１】メインコントローラ２１３は、プリンタ１０３（Ｘ）全体の動作制御を司る機能を有する。例えば、メインコントローラ２１３は、一次記憶部２０４或いは二次記憶部２０５等の記憶手段へ予め記憶された処理プログラムを読み出して実行することで、プリンタ１０３（Ｘ）全体の動作制御を司る機能を実施する。

【００５２】（サーバ１０２の構成）図３は、上記図１のサーバ１０２の内部構成の一例を示したものである。

【００５３】サーバ１０２は、上記図３に示すように、一時記憶部３０２、二次記憶部３０３、ネットワークアダプタ３０５のプロトコル解析部３０６、ユーザ管理部３０９、カウンタ管理部３０８、クレジット管理部３０７、及びメインコントローラ３０４を備え、これらの各構成部（モジュール）３０２～３０９は、データやコントロール信号等の送受信を媒介するシステムバス３１０を介して互いに通信可能なように接続されている。

【００５４】尚、上記図３に示したサーバ１０２の内部構成は、本実施の形態の説明に用いた構成の一例であり、本発明の請求項に記載の構成を満たす限りは、如何なる構成を取った場合でも本発明は適用される。

【００５５】一次記憶部３０２及び二次記憶部３０３はそれぞれ、サーバ１０２での各種処理に使用したり、サーバ１０２が使用する各種データを一時的或いは長期的に蓄積するために用いる半導体記憶手段や磁気記録手段等を含むものである。

【００５６】ネットワークアダプタ３０５は、ネットワーク１０１上の外部機器とのデータの送受信を行うためのものである。プロトコル解析部３０６は、ネットワークアダプタ３０５が受信したデータをサポートするプロトコルに応じて処理し、サーバ１０２内で処理可能な形式に変換する機能を有する。

求が出力されると、メインコントローラ２１３は、当該処理要求が、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であるか否かを判別する（ステップＳ６０２）。

【００６７】ステップＳ６０２において、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であったばらば、それはクライアント機１０４（Ｘ）からの何らかの処理依頼がなされたことを意味する。したがって、この場合には、後述するステップＳ６０４からの処理に進む。一方、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信でない場合、プリンタ１０３（Ｘ）内での処理（例えば、操作部２０２からの指示に従った処理等）を意味するため、当該処理を実行した後（ステップＳ６０３）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【００６８】尚、ステップＳ６０３において、実際に実行される処理としては、様々な処理があるが、本発明の効果に対して直接的な関係がない処理であるため、その詳細な説明は省略する。

【００６９】ステップＳ６０４からの処理では、メインコントローラ２１３は、ユーザの認証処理を実行する（ステップＳ６０４）。ここでのユーザ認証処理は、クライアント機１０４（Ｘ）において、印刷対象データを投入したユーザ（処理依頼者）が処理の実行権限を持っているか否かをチェックするための処理を含んでいる。具体的には例えば、メインコントローラ２１３は、ユーザ管理部２１０を介して、クライアント機１０４（Ｘ）からのユーザ情報をサーバ１０２へ送信する。サーバ１０２は、プリンタ１０３（Ｘ）からの上記ユーザ情報により、ユーザ管理３０９で管理しているユーザのアカウント情報をチェックし、そのチェック結果に基づいたステータスを返送する。

【００７０】メインコントローラ２１３は、サーバ１０２から返送されてきた上記ステータスにより、認証処理が成功したか否かを判別する（ステップＳ６０５）。

【００７１】ステップＳ６０５において、認証処理が成功した場合には、後述するステップＳ６０７からの処理に進む。一方、認証処理が失敗した場合には、処理要求を発行したクライアント機１０４（Ｘ）に対して認証失敗通知を発行し（ステップＳ６０６）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【００７２】ステップＳ６０７からの処理では、メインコントローラ２１３は、クライアント機１０４（Ｘ）からのデータの受信処理を実行する（ステップＳ６０７）。具体的には例えば、メインコントローラ２１３は、ネットワークアダプタ２０９及びプロトコル解析部２０８がクライアント機１０４（Ｘ）から送信されてくるデータを受信し、当該受信データを一次記憶装置２０４又は二次記憶装置２０５が記憶するよう、これらの各構成部に対して動作指示する。

【００７３】メインコントローラ２１３は、一次記憶装置２０４又は二次記憶装置２０５へ記憶された受信データ（処理対象データ４００）から、当該データに含まれる当該データの有効期限情報４０２及び課金対象者情報４０１等を分離するように、プリントデータ解析部２０２に対して動作指示する（ステップＳ６０８）。

【００７４】尚、ステップＳ６０８でのプリントデータ解析部２０３の具体的な処理内容及びその手順については、処理対象データのデータ構造や、当該データのエンコード／デコード方式に依存し、且つ本発明の本質ではないので、その詳細な説明は省略する。また、ステップＳ６０７のデータ受信処理についても、受信した個々のパケット毎に当該処理を実行する、或いはデータを構成する全パケットを受信し終わった後に当該処理を実行する場合等、様々な処理パターンが考えられるが、ステップＳ６０８において、受信データから最終的に必要な情報が切り出せることを保証していれば、どのような処理パターンでも適用可能であり、この限りにおいて本発明は適用される。

【００７５】メインコントローラ２１３は、ステップＳ６０８にて取得した有効期限情報４０２により、処理対象データ４００（具体的にはＰＤＬデータ４０３）の有効期限が切れているか否かを判別する（ステップＳ６０９）例えば、メインコントローラ２１３は、有効期限情報４０２により示される日付及び時刻と、プリンタ１０３（Ｘ）の内部タイマにより示される現在の日付及び時刻とを比較し、現在の日付及び時刻（処理依頼のタイミング）が、有効期限情報４０２により示される日付及び時刻を越えているか否かを判別する。

【００７６】ステップＳ６０９において、処理対象データ４００の有効期限が切れている場合には、クライアント機１０４（Ｘ）に対して期限切れを通知し（ステップＳ６１０）、処理を中断して、再びステップＳ６０１へと戻り、処理要求待ち状態となる。一方、処理対象データ４００の有効期限が切れていない場合には、次のステップＳ６１１からの処理を実行する。

【００７７】ステップＳ６１１からの処理では、メインコントローラ２１３は、ステップＳ６０８にて取得したＰＤＬデータ４０３を、ＰＤＬ解釈部２１２へ供給することで、イメージ画像へと展開する（ステップＳ６１１）。

【００７８】メインコントローラ２１３は、ステップＳ６１３にて取得したイメージ画像データ、及びステップＳ６０８にて取得した課金対象者情報４０２により示される課金条件（上記図５参照）により、当該イメージ画像データの処理時に課金すべき課金対象者を判別する（ステップＳ６１２）。

【００７９】メインコントローラ２１３は、ステップＳ６１２にて判別した課金対象者のクレジットのチェックを行う（ステップＳ６１３）。例えば、メインコントロ

ザ管理部３０９に対して出力された処理要求が認証処理要求でない場合、ユーザ管理部３０９は、当該処理要求がユーザ管理処理の要求であるか否かを判別する（ステップＳ８０９）。

【００９５】ステップＳ８０９において、ユーザ管理処理の要求であった場合、ユーザ管理部３０９は、当該要求を発行したユーザが、ユーザ管理を実行する権限を有しているか否かを判別する（ステップＳ８１０）。

【００９６】ステップＳ８１０において、ユーザ管理を実行する権限を有する場合、上記図７に示したようなユーザ情報のエントリの編集処理を実行し（ステップＳ８１１）、ユーザ管理部３０９は、その処理が正常終了した場合に、再びステップＳ８０１へと戻り、処理要求待ち状態となる。一方、ユーザ管理を実行する権限がない場合、ユーザ管理部３０９は、ユーザ管理処理の要求元へエラー通知を発行した後（ステップＳ８１２）、再びステップＳ８０１へと戻り、処理要求待ち状態となる。

【００９７】ステップＳ８０９において、ユーザ管理処理の要求でなかった場合、ユーザ管理部３０９は、存在しない処理の要求（オペレーションの実行依頼）であるものと見なし、エラー処理を実行した後（ステップＳ８１３）、再びステップＳ８０１へと戻り、処理要求待ち状態となる。

【００９８】（２）カウンタ管理部３０８の動作

まず、図９は、サーバ１０２のカウンタ管理部３０８によって管理されるカウンタ情報の一例を示したものである。カウンタ管理部３０８は、上記図９に示すように、それぞれのユーザ（登録ユーザ）のＩＤ（ユーザＩＤ）に対応付けして、ユーザが使用した資源（リソース）の頻度をカウンタ値として管理している。

【００９９】尚、上記図９に示したようなカウンタ情報は、特殊な権限を持ったユーザ（管理者）やモジュールによってのみアクセス又は変更が可能であり、それ以外のユーザやモジュールからはアクセスすることはできないようになされている。

【０１００】図１０は、サーバ１０２のカウンタ管理部３０８の動作を示したものである。例えば、サーバ１０２のメインコントローラ３０４は、一次記憶部３０２或いは二次記憶部３０３等の記憶手段へ予め記憶された、上記図１０のフローチャートに従った処理プログラムを読み出して実行する。これにより、サーバ１０２のカウンタ管理部３０８は、次のように動作する。

【０１０１】カウンタ管理部３０８は、本処理実行開始後、直ぐに処理要求待ち状態になる（ステップＳ１００１）。この状態からは、カウンタ管理部３０８に対して何らかの処理要求が出力されるまで変化しない。

【０１０２】カウンタ管理部３０８に対して何らかの処理要求が出力されると、カウンタ管理部３０８は、当該処理要求が、カウンタ値のカウントアップ要求であるか否かを判別する（ステップＳ１００２）。この判別の結果、カウントアップ要求である場合には、ステップＳ１００３からの処理に進み、そうでない場合には、後述するステップＳ１００５からの処理に進む。

【０１０３】ステップＳ１００３からの処理では、カウンタ管理部３０８は、上記図９に示したカウンタ情報の該当ユーザのカウンタ値を更新する（ステップＳ１００３）。また、カウンタ管理部３０８は、上記カウンタ値の更新に応じて、クレジット管理３０７によって管理されている該当ユーザのクレジット残量を更新する（ステップＳ１００４）。その後、カウンタ管理部３０８は、再びステップＳ１００１へ戻り、処理要求待ち状態となる。

【０１０４】ステップＳ１００２において、カウンタ管理部３０８に対して要求された処理がカウントアップ処理要求でなかった場合、カウンタ管理部３０８は、当該処理要求がカウンタ値の問い合わせ処理要求であるか否かを判別する（ステップＳ１００５）。この判別の結果、カウンタ値の問い合わせ処理要求である場合には、ステップＳ１００６からの処理に進み、そうでない場合には、後述するステップＳ１００７からの処理に進む。

【０１０５】ステップＳ１００６からの処理では、カウンタ管理部３０８は、上記図９に示したカウンタ情報の該当ユーザのカウンタ値を、要求先へ送信する（ステップＳ１００６）。その後、カウンタ管理部３０８は、再びステップＳ１００１へ戻り、処理要求待ち状態となる。

【０１０６】ステップＳ１００５において、カウンタ管理部３０８に対して要求された処理がカウント値の問い合わせ処理要求でなかった場合、カウンタ管理部３０８は、当該処理要求が管理オペレーションによる処理要求であるか否かを判別する（ステップＳ１００７）。ここでの管理オペレーションとは、特別な権限を持ったユーザ（管理者）による上記図９に示したカウンタ情報の編集作業を指す。この判別の結果、管理オペレーションによる処理要求である場合には、ステップＳ１００８からの処理に進み、そうでない場合には、後述するステップＳ１０１１からの処理に進む。

【０１０７】ステップＳ１００８からの処理では、カウンタ管理部３０８は、処理依頼者が管理オペレーションの実行権限（管理権限）を持っているユーザであるか否かを判別する（ステップＳ１００８）。この判別の結果、管理権限を持っているユーザである場合、カウンタ管理部３０８は、当該ユーザからの指示に従って、上記図９のカウンタ情報の編集作業を実行し（ステップＳ１００９）、当該作業が正常に終了した場合に、再びステップＳ１００１へ戻り、処理要求待ち状態となる。一方、管理権限を持っているユーザでない場合、カウンタ管理部３０８は、当該ユーザへエラーを通知し（ステップＳ１０１０）、そのままステップＳ１００１へ戻り、処理要求待ち状態となる。

手段）を直接実現するような形態を取るならば、プリンタ１０３（１）～１０３（３）のみで、本発明に必要な機能は実現可能である。しかしながら、本実施の形態のように、複数のプリンタ１０３（１）～１０３（３）でユーザ管理手段及び課金管理手段を個別に実施するような実装形態は管理面で効率が良くない。したがって、本実施の形態のように、サーバ１０２に対して、ユーザ管理手段及び課金管理手段を一元的に持たせ、プリンタ１０３（１）～１０３（３）に対して、サーバ１０２のユーザ管理手段及び課金管理手段へのアクセス手段を持たせることにより、本システム１００全体として本発明による課金の構成を提供する実現形態を取っている。当然のことながら、このような本実現の形態は、本発明が言及する課金の構成の実現の形態の一例にすぎない。したがって、本実施の形態以外の場合、例えば、上述したようにプリンタ１０３（１）～１０３（３）へ直接ユーザ管理手段及び課金管理手段を持たせるような形態の場合においても本発明は適用される。

【０１２２】また、本実施の形態では、プリンタ１０３（１）～１０３（３）、クライアント機器１０４（１）～１０４（３）、及びサーバ１０２を接続するネットワーク１０１の詳細な構成については特に言及していない。その理由は、これは本発明の対象である課金の構成とは本質的な関係がないからである。したがって、ネットワーク１０１の物理的な実現方法に関しどのような形態をとった場合においても本発明は適用される。

【０１２３】また、上記図１では、単一のネットワーク１０１により、複数の機器１０２、１０３（１）～１０３（３）、１０４（１）～１０４（３）が接続された構成を図示したが、これに限られることはなく、例えば、インターネット等のように複数のネットワークを介して、複数の機器１０２、１０３（１）～１０３（３）、１０４（１）～１０４（３）が接続される構成とするようにしてもよい。この場合も本発明は適用される。

【０１２４】また、本実施の形態において、例えば、クライアント機器１０４（１）～１０４（３）の機能をプリンタ１０３（１）～１０３（３）が直接提供する等、何らかの形態で、プリンタ１０３（１）～１０３（３）に対して直接ユーザが印刷対象データを入力できるように構成してもよい。この場合も本発明は適用される。

【０１２５】＜第２の実施の形態＞本実施の形態では、上記図１に示したネットワークシステム１００において、プリンタ１０３（Ｘ）の動作を、例えば、図１３のフローチャートに従った動作とする。

【０１２６】尚、上記図１３に示すフローチャートにおいて、上記図６に示したフローチャートと同様に処理実行するステップには同じ符号を付し、その詳細な説明は省略する。

【０１２７】例えば、プリンタ１０３（Ｘ）のメインコントローラ２１３は、一次記憶部２０４或いは二次記憶部２０５等の記憶手段へ予め記憶された、上記図１３のフローチャートに従った処理プログラムを読み出して実行する。これにより、プリンタ１０３（Ｘ）は、次のように動作する。

【０１２８】メインコントローラ２１３は、本処理実行開始後、直ぐに処理要求待ち状態になる（ステップＳ６０１）。この状態からは、システムバス２０１上の各構成部２０２～２１２の何れかの構成部（コンポーネント）から処理要求が出力されるまで変化しない。

【０１２９】システムバス２０１上の各構成部２０２～２１２の何れかの構成部（コンポーネント）から処理要求が出力されると、メインコントローラ２１３は、当該処理要求が、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であるか否かを判別する（ステップＳ６０２）。

【０１３０】ステップＳ６０２において、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であったばらば、それはクライアント機１０４（Ｘ）からの何らかの処理依頼がなされたことを意味する。したがって、この場合には、後述するステップＳ６０４からの処理に進む。一方、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信でない場合、プリンタ１０３（Ｘ）内での処理（例えば、操作部２０２からの指示に従った処理等）を意味するため、当該処理を実行した後（ステップＳ６０３）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【０１３１】尚、ステップＳ６０３において、実際に実行される処理としては、様々な処理があるが、本発明の効果に対して直接的な関係がない処理であるため、その詳細な説明は省略する。

【０１３２】ステップＳ６０４からの処理では、メインコントローラ２１３は、ユーザの認証処理を実行する（ステップＳ６０４）。ここでのユーザ認証処理は、クライアント機１０４（Ｘ）において、印刷対象データを投入したユーザ（処理依頼者）が処理の実行権限を持っているか否かをチェックするための処理を含んでいる。具体的には例えば、メインコントローラ２１３は、ユーザ管理部２１０を介して、クライアント機１０４（Ｘ）からのユーザ情報をサーバ１０２へ送信する。サーバ１０２は、プリンタ１０３（Ｘ）からの上記ユーザ情報により、ユーザ管理３０９で管理しているユーザのアカウント情報をチェックし、そのチェック結果に基づいたステータスを返送する。

【０１３３】メインコントローラ２１３は、サーバ１０２から返送されてきた上記ステータスにより、認証処理が成功したか否かを判別する（ステップＳ６０５）。

【０１３４】ステップＳ６０５において、認証処理が成功した場合には、後述するステップＳ６０７からの処理に進む。一方、認証処理が失敗した場合には、処理要求を発行したクライアント機１０４（Ｘ）に対して認証失

い旨を通知し（ステップＳ６２７）、ステップＳ６０１へと戻り、処理要求待ち状態となる。

【０１４８】ステップＳ６２６において、課金対象者が処理依頼者自身でないと判別された場合、メインコントローラ２１３は、クライアント機１０４（Ｘ）のユーザ（処理依頼者）に対して、課金対象者を自分（処理依頼者）へ変更することで処理を継続するか否かを問い合わせる（ステップＳ６２８）。この問い合わせの結果、課金対象者を変更しない場合、メインコントローラ２１３は、処理実行を中断し、クライアント機１０４（Ｘ）に対して（処理依頼者に対して）、クレジット残量がない旨を通知し（ステップＳ６２７）、ステップＳ６０１へと戻り、処理要求待ち状態となる。一方、課金対象者を変更しない場合、メインコントローラ２１３は、課金対象者を処理依頼者へ変更し（ステップＳ６２９）、再びステップＳ６２１からの処理を実行する。

【０１４９】＜第３の実施の形態＞本実施の形態では、上記図１に示したネットワークシステム１００において、プリンタ１０３（Ｘ）の動作を、例えば、図１４のフローチャートに従った動作とする。尚、上記図１４に示すフローチャートにおいて、上記図６に示したフローチャートと同様に処理実行するステップには同じ符号を付し、その詳細な説明は省略する。

【０１５０】また、本実施の形態では、上記図４に示した課金対象者情報４０１の詳細な情報を、図１５に示すような情報とする。当該図１５の課金対象者情報４０１では、処理を許可する処理依頼者のユーザＩＤが列挙されている。このため、以下の説明では、上記図１５の課金対象者情報４０１を、処理依頼者情報４０１－（ａ）と言う。尚、上記図１５に示した処理依頼者情報４０１－（ａ）は、特殊な権限を持ったユーザ（管理者）やモジュールによってのみアクセス又は変更が可能であり、それ以外のユーザやモジュールからはアクセスすることはできないようになされている。

【０１５１】そこで、例えば、プリンタ１０３（Ｘ）のメインコントローラ２１３は、一次記憶部２０４或いは二次記憶部２０５等の記憶手段へ予め記憶された、上記図１４のフローチャートに従った処理プログラムを読み出して実行する。これにより、プリンタ１０３（Ｘ）は、次のように動作する。

【０１５２】メインコントローラ２１３は、本処理実行開始後、直ぐに処理要求待ち状態になる（ステップＳ６０１）。この状態からは、システムバス２０１上の各構成部２０２～２１２の何れかの構成部（コンポーネント）から処理要求が出力されるまで変化しない。

【０１５３】システムバス２０１上の各構成部２０２～２１２の何れかの構成部（コンポーネント）から処理要求が出力されると、メインコントローラ２１３は、当該処理要求が、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であるか否かを判別する（ステップＳ６０２）。

【０１５４】ステップＳ６０２において、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であったばらば、それはクライアント機１０４（Ｘ）からの何らかの処理依頼がなされたことを意味する。したがって、この場合には、後述するステップＳ６０４からの処理に進む。一方、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信でない場合、プリンタ１０３（Ｘ）内での処理（例えば、操作部２０２からの指示に従った処理等）を意味するため、当該処理を実行した後（ステップＳ６０３）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【０１５５】尚、ステップＳ６０３において、実際に実行される処理としては、様々な処理があるが、本発明の効果に対して直接的な関係がない処理であるため、その詳細な説明は省略する。

【０１５６】ステップＳ６０４からの処理では、メインコントローラ２１３は、ユーザの認証処理を実行する（ステップＳ６０４）。ここでのユーザ認証処理は、クライアント機１０４（Ｘ）において、印刷対象データを投入したユーザ（処理依頼者）が処理の実行権限を持っているか否かをチェックするための処理を含んでいる。具体的には例えば、メインコントローラ２１３は、ユーザ管理部２１０を介して、クライアント機１０４（Ｘ）からのユーザ情報をサーバ１０２へ送信する。サーバ１０２は、プリンタ１０３（Ｘ）からの上記ユーザ情報により、ユーザ管理３０９で管理しているユーザのアカウント情報をチェックし、そのチェック結果に基づいたステータスを返送する。

【０１５７】メインコントローラ２１３は、サーバ１０２から返送されてきた上記ステータスにより、認証処理が成功したか否かを判別する（ステップＳ６０５）。

【０１５８】ステップＳ６０５において、認証処理が成功した場合には、後述するステップＳ６０７からの処理に進む。一方、認証処理が失敗した場合、メインコントローラ２１３は、処理要求を発行したクライアント機１０４（Ｘ）に対して認証失敗通知を発行し（ステップＳ６０６）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【０１５９】ステップＳ６０７からの処理では、メインコントローラ２１３は、クライアント機１０４（Ｘ）からのデータの受信処理を実行する（ステップＳ６０７）。具体的には例えば、メインコントローラ２１３は、ネットワークアダプタ２０９及びプロトコル解析部２０８がクライアント機１０４（Ｘ）から送信されてくるデータを受信し、当該受信データを一次記憶装置２０４又は二次記憶装置２０５が記憶するよう、これらの各構成部に対して動作指示する。

【０１６０】メインコントローラ２１３は、一次記憶装置２０４又は二次記憶装置２０５へ記憶された受信デー

１０４（X）に対して（処理依頼者に対して）、クレジット残量がない旨を通知し（ステップS６３６）、ステップＳ６０１へと戻り、処理要求待ち状態となる。

【０１７４】＜第４の実施の形態＞本実施の形態では、上記図１に示したネットワークシステム１００において、サーバ１０２及びプリンタ１０３（Ｘ）の構成及び動作を、次のように実施する。

【０１７５】（サーバ１０２の構成）本実施の形態におけるサーバ１０２は、例えば、図１６に示すように、上記図３に示した構成に対して、データＩＤ管理部３１１を更に備えた構成としている。データＩＤ管理部３１１は、処理対象データをサーバ１０２が識別し管理するための構成部である。このため、処理対象データには、当該データを識別するためのＩＤ（データＩＤ）が付加されており、データＩＤ管理部３１１は、データＩＤに対応付けして、当該データを処理可能な回数を管理している。

【０１７６】図１７は、データＩＤ管理部３１１での管理情報の一例を示したものである。上記図１７に示すように、データＩＤ管理部３１１では、処理対象データがユニークなデータＩＤによって管理されると共に、当該データＩＤに対応付けられて処理可能回数の残回数が管理される。例えば、上記図１７では、“Ｄ＿ＩＤ０００３４”で示される処理対象データは、あと１２１回処理することが可能であることが示されている。

【０１７７】上記図１７のデータＩＤ管理情報は、特殊な権限を持ったユーザ（管理者）やモジュールによってのみアクセス又は変更が可能であり、それ以外のユーザやモジュールからはアクセスすることはできないようになされている。また、上記図１７のデータＩＤ管理情報をデータＩＤ管理部３１１で管理するために、任意の方法によって処理対象データ生成時に予めデータＩＤ管理部３１０に対して、当該処理対象データのデータＩＤ及び対応する処理可能回数が登録される。このとき、データＩＤは、ユニークなＩＤであることが保証される。

【０１７８】尚、上記図１７のデータＩＤ管理情報の登録の実現方法に関する詳細は、本発明において本質的なものではないため、その詳細な説明は省略する。したがって上記実現方法に関していかなる手段をとった場合においても、本発明の請求項の構成を満たす限り、本発明は適用される。

【０１７９】（プリンタ１０３（Ｘ）の構成）本実施の形態におけるプリンタ１０３（Ｘ）は、例えば、図１８に示すように、上記図２に示した構成に対して、データＩＤ管理部２１４を更に備えた構成としている。データＩＤ管理部２１４は、ユーザ管理部２１０や課金管理部２１１と同様に、サーバ１０２のデータＩＤ管理部３１１に対するアクセス手段を提供するようになされている。

【０１８０】尚、当然のことながら、データＩＤ管理部２１４に対して、サーバ１０２のデータＩＤ管理部３１１が有する機能を直接持たせるようにしてもよい。

【０１８１】また、本実施の形態では、上記図４に示した処理対象データ４００（印刷対象データ）の代わりに、図１９に示すような処理対象データ４００－（ａ）を用いる。処理対象データ４００－（ａ）は、上記図１９に示すように、上記図４の処理対象データ４００（印刷対象データ）に対して、課金対象者情報４０１、有効期限情報４０２、及びＰＤＬデータ４０３に加え、データＩＤ４０４を含んでいる。データＩＤ４０４とは、上述したように、処理対象データ４００－（ａ）を一意に識別するために用いるデータである。

【０１８２】尚、本実施の形態における処理対象データ４００－（ａ）において、有効期限情報４０２、課金対象者情報４０１、及びデータＩＤ４０４等の情報が実際に処理対象データ４００－（ａ）の中でどのようなフォーマットで格納されるかに関しては、その実現方法が複数考えられる。しかしながら、このときのフォーマット形式に依存することなく、有効期限情報４０２、課金対象者情報４０１、データＩＤ４０４等の情報を任意の形式によって、ＰＤＬデータ４０３に対して付加し、且つ分離できるように構成したならば、本発明は適用される。また、本実施の形態においては、処理対象データ４００－（ａ）内に格納された有効期限情報４０２、課金対象者情報４０１、ＰＤＬデータ４０３、及びデータＩＤ４０４の各情報は、上記図２に示したプリントデータ解析部２０３によってのみ分離可能としている。その理由は、有効期限情報４０２、課金対象者情報４０１、及びデータＩＤ４０４等の情報は、課金処理に関係する極めて重要なデータであり、第３者による改竄や悪用を防止するためである。このため、有効期限情報４０２、課金対象者情報４０１、及びデータＩＤ４０４等の情報は、セキュリティの面から特殊な方法によって生成され、また特殊な方法によってＰＤＬデータ４０３に付加され、さらに特殊な方法によってプリントデータ解析部２０３でのみ分離可能であることを保証するようになされている。但し、ここでの特殊な方法そのものは本発明にとっては本質的ではなく、上記の要件を満たす方法であるならば如何なる方法であっても適用可能であり、その限り本発明は適用される。

【０１８３】（プリンタ１０３（Ｘ）の動作）図２０は、本実施の形態におけるプリンタ１０３（Ｘ）の動作を示したものである。例えば、プリンタ１０３（Ｘ）のメインコントローラ２１３は、一次記憶部２０４或いは二次記憶部２０５等の記憶手段へ予め記憶された、上記図２０のフローチャートに従った処理プログラムを読み出して実行する。これにより、プリンタ１０３（Ｘ）は、次のように動作する。

【０１８４】尚、上記図２０に示すフローチャートにおいて、上記図６に示したフローチャートと同様に処理実

コントローラ２１３は、ステップＳ６０８´にて取得したデータＩＤ４０４により、処理対象データ４００－（ａ）の処理可能回数が未だ残っているか否かを判別する。具体的には、メインコントローラ２１３は、ステップＳ６０８´にて取得したデータＩＤ４０４を、データＩＤ管理部２１４を介して、サーバ１０２のデータＩＤ管理部３１１へ供給することで、当該データＩＤ４０４により示される処理対象データの処理可能回数が残っているか否かのチェックを依頼する（ステップＳ６５１）。

【０１９８】ステップＳ６５１のチェックの結果、データＩＤ４０４により示される処理対象データの処理可能回数が残っていない場合（有効回数オーバーの場合）、ステップＳ６５２からの処理に進み、データＩＤ４０４により示される処理対象データの処理可能回数が残っている場合（有効回数オーバーでない場合）、後述するステップＳ６５３からの処理に進む。

【０１９９】ステップＳ６５２からの処理では、メインコントローラ２１３は、処理対象データの処理可能回数が残っていない旨を、クライアント機１０４（Ｘ）へ通知し（ステップＳ６５２）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２００】ステップＳ６５１のチェックにより、データＩＤ４０４により示される処理対象データの処理可能回数が残っている場合、メインコントローラ２１３は、課金対象者のクレジットのチェックを行う（ステップＳ６５３）。例えば、メインコントローラ２１３は、ステップＳ６０８´にて取得した課金対象者情報４０１を、ユーザ管理部２１０を介してサーバ１０２のクレジット管理部３０７へ供給し、課金対象者情報４０１により示される課金対象者のクレジットが処理対象データ４００－（ａ）の処理に必要な量分残っているか否かのチェックを依頼する。

【０２０１】ステップＳ６５３の判別の結果、課金対象者のクレジットが存在しない場合、ステップＳ６５４からの処理に進み、課金対象者のクレジットが存在する場合、後述するステップＳ６５５からの処理に進む。

【０２０２】ステップＳ６５４からの処理では、メインコントローラ２１３は、処理実行を中断し、クライアント機１０４（Ｘ）に対して、クレジット残量がない旨を通知し（ステップＳ６５４）、ステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２０３】ステップＳ６５３において、課金対象者のクレジットが存在すると判別された場合、メインコントローラ２１３は、ステップＳ６０８´にて取得したＰＤＬデータ４０３を、ＰＤＬ解釈部２１２へ供給することで、イメージ画像へと展開する（ステップＳ６５５）。

【０２０４】メインコントローラ２１３は、処理対象データ４００－（ａ）の処理を実行する（ステップＳ６５６）。本実施の形態では、当該処理が印刷処理に相当する。このため、例えば、メインコントローラ２１３は、ステップＳ６５５にて取得したイメージ画像データをエンジンコントローラ２０７を介してプリントエンジン２０６へ供給することで、当該イメージ画像データへの印刷処理を実行する。

【０２０５】メインコントローラ２１３は、課金管理部２１１を介して、サーバ１０２のカウンタ管理部３０８により、課金対象者のカウンタの値を更新する（ステップ６５７）。これに伴って、サーバ１０２のクレジット管理部３０７にて管理されている課金対象者のクレジットの残量も更新される。

【０２０６】メインコントローラ２１３は、ここまでの処理で、処理対象データ４００－（ａ）の中のＰＤＬデータ４０３が全て処理完了したか否かを判別し（ステップＳ６５８）、未だ完了していない場合にはステップＳ６５３へ戻り、これ以降の処理ステップを実行する。そして、ＰＤＬデータ４０３が全て処理完了すると、メインコントローラ２１３は、データＩＤ管理部２１４を介して、サーバ１０２のデータＩＤ管理部３１１へ、当該処理完了した処理対象データ４００－（ａ）の処理可能回数の更新を依頼し（ステップＳ６５９）、ステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２０７】（サーバ１０２の動作）図２１は、サーバ１０２のデータＩＤ管理部３１１の動作を示したものである。例えば、サーバ１０２のメインコントローラ３０４は、一次記憶部３０２或いは二次記憶部３０３等の記憶手段へ予め記憶された、上記図２１のフローチャートに従った処理プログラムを読み出して実行する。これにより、サーバ１０２のデータＩＤ管理部３１１は、次のように動作する。

【０２０８】データＩＤ管理部３１１は、本処理実行開始後、直ぐに処理要求待ち状態になる（ステップＳ１３０１）。この状態からは、データＩＤ管理部３１１に対して何らかの処理要求が出力されるまで変化しない。

【０２０９】データＩＤ管理部３１１に対して何らかの処理要求が出力されると、データＩＤ管理部３１１は、当該処理要求が、処理可能回数の問い合わせ要求であるか否かを判別する（ステップＳ１３０２）。この判別の結果、処理可能回数の問い合わせ要求である場合には、ステップＳ１３０３からの処理に進み、そうでない場合には、後述するステップＳ１３０４からの処理に進む。

【０２１０】ステップＳ１３０３からの処理では、データＩＤ管理部３１１は、上記図１７に示したデータＩＤ管理情報の中から、処理可能回数の問い合わせ要求により示される処理対象データのＩＤに対応する残り処理可能回数の値を当該要求元へ返送する（ステップＳ１３０３）。その後、データＩＤ管理部３１１は、再びステップＳ１３０１へ戻り、処理要求待ち状態となる。

【０２１１】ステップＳ１３０２において、データＩＤ管理部３１１に対して要求された処理が処理可能回数の

【０２２４】ステップＳ６０２において、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信であったばらば、それはクライアント機１０４（Ｘ）からの何らかの処理依頼がなされたことを意味する。したがって、この場合には、後述するステップＳ６０４からの処理に進む。一方、ネットワークアダプタ２０９及びプロトコル解析部２０８によるデータ受信でない場合、プリンタ１０３（Ｘ）内での処理（例えば、操作部２０２からの指示に従った処理等）を意味するため、当該処理を実行した後（ステップＳ６０３）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２２５】尚、ステップＳ６０３において、実際に実行される処理としては、様々な処理があるが、本発明の効果に対して直接的な関係がない処理であるため、その詳細な説明は省略する。

【０２２６】ステップＳ６０４からの処理では、メインコントローラ２１３は、ユーザの認証処理を実行する（ステップＳ６０４）。ここでのユーザ認証処理は、クライアント機１０４（Ｘ）において、印刷対象データを投入したユーザ（処理依頼者）が処理の実行権限を持っているか否かをチェックするための処理を含んでいる。具体的には例えば、メインコントローラ２１３は、ユーザ管理部２１０を介して、クライアント機１０４（Ｘ）からのユーザ情報をサーバ１０２へ送信する。サーバ１０２は、プリンタ１０３（Ｘ）からの上記ユーザ情報により、ユーザ管理３０９で管理しているユーザのアカウント情報をチェックし、そのチェック結果に基づいたステータスを返送する。

【０２２７】メインコントローラ２１３は、サーバ１０２から返送されてきた上記ステータスにより、認証処理が成功したか否かを判別する（ステップＳ６０５）。

【０２２８】ステップＳ６０５において、認証処理が成功した場合には、後述するステップＳ６０７からの処理に進む。一方、認証処理が失敗した場合には、処理要求を発行したクライアント機１０４（Ｘ）に対して認証失敗通知を発行し（ステップＳ６０６）、再びステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２２９】ステップＳ６０７からの処理では、メインコントローラ２１３は、クライアント機１０４（Ｘ）からのデータの受信処理を実行する（ステップＳ６０７）。具体的には例えば、メインコントローラ２１３は、ネットワークアダプタ２０９及びプロトコル解析部２０８がクライアント機１０４（Ｘ）から送信されてくるデータを受信し、当該受信データを一次記憶装置２０４又は二次記憶装置２０５が記憶するよう、これらの各構成部に対して動作指示する。

【０２３０】メインコントローラ２１３は、一次記憶装置２０４又は二次記憶装置２０５へ記憶された受信データ（処理対象データ４００）から、当該データに含まれる当該データの有効期限情報４０２及び課金対象者情報４０１－（ｂ）等を分離するように、プリントデータ解析部２０２に対して動作指示する（ステップＳ６０８）。

【０２３１】尚、ステップＳ６０８でのプリントデータ解析部２０３の具体的な処理内容及びその手順については、処理対象データのデータ構造や、当該データのエンコード／デコード方式に依存し、且つ本発明の本質ではないので、その詳細な説明は省略する。また、ステップＳ６０７のデータ受信処理についても、受信した個々のパケット毎に当該処理を実行する、或いはデータを構成する全パケットを受信し終わった後に当該処理を実行する場合等、様々な処理パターンが考えられるが、ステップＳ６０８において、受信データから最終的に必要な情報が切り出せることを保証していれば、どのような処理パターンでも適用可能であり、この限りにおいて本発明は適用される。

【０２３２】メインコントローラ２１３は、ステップＳ６０８にて取得した有効期限情報４０２により、処理対象データ４００（具体的にはＰＤＬデータ４０３）の有効期限が切れているか否かを判別する（ステップＳ６０９）例えば、メインコントローラ２１３は、有効期限情報４０２により示される日付及び時刻と、プリンタ１０３（Ｘ）の内部タイマにより示される現在の日付及び時刻とを比較し、現在の日付及び時刻（処理依頼のタイミング）が、有効期限情報４０２により示される日付及び時刻を越えているか否かを判別する。

【０２３３】ステップＳ６０９において、処理対象データ４００の有効期限が切れている場合には、クライアント機１０４（Ｘ）に対して期限切れを通知し（ステップＳ６１０）、処理を中断して、再びステップＳ６０１へと戻り、処理要求待ち状態となる。一方、処理対象データ４００の有効期限が切れていない場合には、次のステップＳ６６１からの処理を実行する。当該ステップＳ６６１からの処理が、本実施の形態で最も特徴とする処理である。

【０２３４】ステップＳ６６１からの処理では、メインコントローラ２１３は、ステップＳ６０８にて取得した課金対象者情報４０１－（ｂ）から、同じくステップＳ６０８にて取得したＰＤＬデータ４０３に対応する課金対象者（処理すべきページの課金対象者）を選択する（ステップＳ６６１）。

【０２３５】メインコントローラ２１３は、課金対象者のクレジットのチェックを行う（ステップＳ６６２）。例えば、メインコントローラ２１３は、ステップＳ６６１にて選択した課金対象者の情報を、ユーザ管理部２１０を介してサーバ１０２のクレジット管理部３０７へ供給し、当該課金対象者のクレジットが処理対象データ４００の処理に必要な量分残っているか否かのチェックを依頼する。

【０２３６】ステップＳ６６２の判別の結果、課金対象

２０８がクライアント機１０４（Ｘ）から送信されてくるデータを受信し、当該受信データを一次記憶装置２０４又は二次記憶装置２０５が記憶するよう、これらの各構成部に対して動作指示する。

【０２５２】メインコントローラ２１３は、一次記憶装置２０４又は二次記憶装置２０５へ記憶された受信データ（処理対象データ４００）から、当該データに含まれる当該データの有効期限情報４０２及び課金対象者情報４０１等を分離するように、プリントデータ解析部２０２に対して動作指示する（ステップＳ６０８）。

【０２５３】尚、ステップＳ６０８でのプリントデータ解析部２０３の具体的な処理内容及びその手順については、処理対象データのデータ構造や、当該データのエンコード／デコード方式に依存し、且つ本発明の本質ではないので、その詳細な説明は省略する。また、ステップＳ６０７のデータ受信処理についても、受信した個々のパケット毎に当該処理を実行する、或いはデータを構成する全パケットを受信し終わった後に当該処理を実行する場合等、様々な処理パターンが考えられるが、ステップＳ６０８において、受信データから最終的に必要な情報が切り出せることを保証していれば、どのような処理パターンでも適用可能であり、この限りにおいて本発明は適用される。

【０２５４】メインコントローラ２１３は、ステップＳ６０８にて取得した有効期限情報４０２により、処理対象データ４００（具体的にはＰＤＬデータ４０３）の有効期限が切れているか否かを判別する（ステップＳ６０９）。例えば、メインコントローラ２１３は、有効期限情報４０２により示される日付及び時刻と、プリンタ１０３（Ｘ）の内部タイマにより示される現在の日付及び時刻とを比較し、現在の日付及び時刻（処理依頼のタイミング）が、有効期限情報４０２により示される日付及び時刻を越えているか否かを判別する。

【０２５５】ステップＳ６０９において、処理対象データ４００の有効期限が切れている場合には、クライアント機１０４（Ｘ）に対して期限切れを通知し（ステップＳ６１０）、処理を中断して、再びステップＳ６０１へと戻り、処理要求待ち状態となる。一方、処理対象データ４００の有効期限が切れていない場合には、次のステップＳ６７１からの処理を実行する。

【０２５６】ステップＳ６７１からの処理では、メインコントローラ２１３は、課金対象者のクレジットのチェックを行う（ステップＳ６７１）。例えば、メインコントローラ２１３は、ステップＳ６０８にて取得した課金対象者情報４０１を、ユーザ管理部２１０を介してサーバ１０２のクレジット管理部３０７へ供給し、課金対象者情報４０１により示される課金対象者のクレジットが処理対象データ４００の処理に必要な量分残っているか否かのチェックを依頼する。

【０２５７】ステップＳ６７１の判別の結果、課金対象者のクレジットが存在しない場合、ステップＳ６７２からの処理に進み、課金対象者のクレジットが存在する場合、後述するステップＳ６７３からの処理に進む。

【０２５８】ステップＳ６７２からの処理では、メインコントローラ２１３は、処理実行を中断し、クライアント機１０４（Ｘ）に対して、クレジット残量がない旨を通知し（ステップＳ６７２）、ステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２５９】ステップＳ６７１において、課金対象者のクレジットが存在すると判別された場合、メインコントローラ２１３は、ステップＳ６０８にて取得したＰＤＬデータ４０３を、ＰＤＬ解釈部２１２へ供給することで、イメージ画像へと展開する（ステップＳ６７３）。

【０２６０】メインコントローラ２１３は、処理対象データ４００の処理を実行する（ステップＳ６７４）。本実施の形態では、当該処理が印刷処理に相当する。このため、例えば、メインコントローラ２１３は、ステップＳ６７３にて取得したイメージ画像データをエンジンコントローラ２０７を介してプリントエンジン２０６へ供給することで、当該イメージ画像データへの印刷処理を実行する。

【０２６１】メインコントローラ２１３は、課金管理部２１１を介して、サーバ１０２のカウンタ管理部３０８により、課金対象者のカウンタの値を更新する（ステップＳ６７５）。これに伴って、サーバ１０２のクレジット管理部３０７にて管理されている課金対象者のクレジットの残量も更新される。

【０２６２】メインコントローラ２１３は、ここまでの処理で、処理対象データ４００の中のＰＤＬデータ４０３が全て処理完了したか否かを判別し（ステップＳ６７６）、未だ完了していない場合にはステップＳ６７１へ戻り、これ以降の処理ステップを実行する。そして、ＰＤＬデータ４０３が全て処理完了すると、ステップＳ６０１へと戻り、処理要求待ち状態となる。

【０２６３】＜第７の実施の形態＞本実施の形態では、上記図１に示したネットワークシステム１００において、プリンタ１０３（Ｘ）の動作を、第６の実施の形態での動作（上記図２４参照）と同様の動作とし、サーバ１０２のクレジット管理部３０７の構成及び動作を、以下のようにする。

【０２６４】まず、クレジット管理部３０７は、上記図１１に示したクレジット情報と共に、図２５に示すような情報（使用頻度／課金率情報）をも管理している。クレジット管理部３０７は、上記図２５に示すように、ユーザの使用頻度、すなわちカウンタ管理部３０８で管理されるユーザ毎のカウンタ値と、それに応じた課金率とを対応付けして管理している。したがって、あるユーザによる処理過程でクレジット残量を変更（更新）する場合には、その時点における当該ユーザの使用頻度（カウンタ値）と、上記図２５の使用頻度／課金率情報の当該

理内容が次のようになる。

【0279】クレジット管理部307は、本処理実行開始後、直ぐに処理要求待ち状態になる（ステップS1201）。この状態からは、クレジット管理部307に対して何らかの処理要求が出力されるまで変化しない。

【0280】クレジット管理部307に対して何らかの処理要求が出力されると、クレジット管理部307は、当該処理要求が、クレジット残量の更新処理要求であるか否かを判別する（ステップS1202）。この判別の結果、クレジット残量の更新処理要求である場合には、ステップS1203からの処理に進み、そうでない場合には、後述するステップS1204からの処理に進む。

【0281】ステップS1203からの処理では、クレジット管理部307は、上記図26に示したクレジット情報において、該当ユーザのクレジット残量を、それに対応して管理されている係数に基づき更新する（ステップS1203）。その後、クレジット管理部307は、再びステップS1201へ戻り、処理要求待ち状態となる。

【0282】ステップS1202において、クレジット管理部307に対して要求された処理がクレジット残量の更新要求でなかった場合、クレジット管理部307は、当該処理要求がクレジット残量の問い合わせ処理要求であるか否かを判別する（ステップS1204）。この判別の結果、クレジット残量の問い合わせ処理要求である場合には、ステップS1205からの処理に進み、そうでない場合には、後述するステップS1206からの処理に進む。

【0283】ステップS1205からの処理では、クレジット管理部307は、上記図26に示したクレジット情報の該当ユーザのクレジット残量と、それに対応して管理されている係数との各情報により、処理実行に必要なクレジットが残っているか否かを判断し、その結果を要求先へ送信する（ステップS1205）。その後、クレジット管理部307は、再びステップS1201へ戻り、処理要求待ち状態となる。

【0284】ステップS1204において、クレジット管理部307に対して要求された処理がクレジット残量の問い合わせ処理要求でなかった場合、クレジット管理部307は、当該処理要求が管理オペレーションによる処理要求であるか否かを判別する（ステップS1206）。ここでの管理オペレーションとは、特別な権限を持ったユーザ（管理者）による上記図26に示したクレジット情報の編集作業を指す。この判別の結果、管理オペレーションによる処理要求である場合には、ステップS1207からの処理に進み、そうでない場合には、後述するステップS1210からの処理に進む。

【0285】ステップS1207からの処理では、クレジット管理部307は、処理依頼者が管理オペレーションの実行権限（管理権限）を持っているユーザであるか否かを判別する（ステップS1207）。この判別の結果、管理権限を持っているユーザである場合、クレジット管理部307は、当該ユーザからの指示に従って、上記図26のクレジット情報の編集作業を実行し（ステップS1208）、当該作業が正常に終了した場合に、再びステップS1201へ戻り、処理要求待ち状態となる。一方、管理権限を持っているユーザでない場合、クレジット管理部307は、当該ユーザへエラーを通知し（ステップS1209）、そのままステップS1201へ戻り、処理要求待ち状態となる。

【0286】ステップS1206において、クレジット管理部307に対して要求された処理が管理オペレーションによる処理要求でもなかった場合、クレジット管理部307は、存在しない処理の要求（オペレーションの実行依頼）であるものと見なし、エラー処理を実行した後（ステップS1210）、再びステップS1201へと戻り、処理要求待ち状態となる。

【0287】＜第9の実施の形態＞本実施の形態では、上記図1に示したネットワークシステム100において、プリンタ103（X）の動作を、第6の実施の形態での動作（上記図24参照）と同様の動作とし、サーバ102のクレジット管理部307の構成及び動作を、以下のようにする。

【0288】まず、クレジット管理部307は、上記図11に示したクレジット情報の代わりに、例えば、図27に示すようなクレジット情報を管理している。上記図27のクレジット情報では、それぞれのユーザ（登録ユーザ）のID（ユーザID）に対応付けして、ユーザのクレジットの残量と共に、クレジット残量がなくなった場合でも処理実行の継続を許可するか否か（TRUE／FALSE）を示すフラグが管理される。上記フラグの値が“TRUE”は、クレジット残量が0となった後でも処理実行の継続を許可することを示す。この場合、クレジットの超過分については、クレジット残量の値を負の値として管理される。上記フラグの値が“FALSE”は、クレジット残量が0となった段階で処理（課金処理及び処理データの処理）実行を中断することを示す。

【0289】尚、上記図27に示したようなクレジット情報につても、特殊な権限を持ったユーザ（管理者）やモジュールによってのみアクセス又は変更が可能であり、それ以外のユーザやモジュールからはアクセスすることはできないようになされている。

【0290】図28は、本実施の形態でのクレジット管理部307の動作を示したものである。例えば、サーバ102のメインコントローラ304は、一次記憶部302或いは二次記憶部303等の記憶手段へ予め記憶された、上記図28のフローチャートに従った処理プログラムを読み出して実行する。これにより、クレジット管理部307は、次のように動作する。

はできないようになされている。また、本実施の形態でのユーザ管理部３０９の動作は、上記図８に示したフローチャートによって示されるが、上記図７のユーザ情報の代わりに、上記図２９のユーザ情報を用いての処理動作となる。

【０３０４】図３０は、本実施の形態でのクレジット管理部３０７の動作を示したものである。例えば、サーバ１０２のメインコントローラ３０４は、一次記憶部３０２或いは二次記憶部３０３等の記憶手段へ予め記憶された、上記図３０のフローチャートに従った処理プログラムを読み出して実行する。これにより、クレジット管理部３０７は、次のように動作する。

【０３０５】クレジット管理部３０７は、本処理実行開始後、直ぐに処理要求待ち状態になる（ステップＳ１２０１）。この状態からは、クレジット管理部３０７に対して何らかの処理要求が出力されるまで変化しない。

【０３０６】クレジット管理部３０７に対して何らかの処理要求が出力されると、クレジット管理部３０７は、当該処理要求が、クレジット残量の更新処理要求であるか否かを判別する（ステップＳ１２０２）。この判別の結果、クレジット残量の更新処理要求である場合には、ステップＳ１２０３からの処理に進み、そうでない場合には、後述するステップＳ１２０４からの処理に進む。

【０３０７】ステップＳ１２０３からの処理では、クレジット管理部３０７は、上記図１１に示したクレジット情報の該当ユーザのクレジット残量を更新する（ステップS１２０３）。その後、クレジット管理部３０７は、再びステップS１２０１へ戻り、処理要求待ち状態となる。

【０３０８】ステップS１２０２において、クレジット管理部３０７に対して要求された処理がクレジット残量の更新要求でなかった場合、クレジット管理部３０７は、当該処理要求がクレジット残量の問い合わせ処理要求であるか否かを判別する（ステップS１２０４）。この判別の結果、クレジット残量の問い合わせ処理要求である場合には、ステップＳ１２０５からの処理に進み、そうでない場合には、後述するステップＳ１２２１からの処理に進む。

【０３０９】ステップＳ１２０５からの処理では、クレジット管理部３０７は、上記図１１に示したクレジット情報の該当ユーザのクレジット残量を、要求先へ送信する（ステップS１２０５）。その後、クレジット管理部３０７は、再びステップS１２０１へ戻り、処理要求待ち状態となる。

【０３１０】ステップS１２０４において、クレジット管理部３０７に対して要求された処理がクレジット残量の問い合わせ処理要求でなかった場合、クレジット管理部３０７は、当該処理要求がクレジットの譲渡処理要求であるか否かを判別する（ステップS１２２１）。この判別の結果、クレジットの譲渡処理要求である場合には、ステップＳ１２２２からの処理に進み、そうでない場合には、後述するステップＳ１２０６からの処理に進む。

【０３１１】ステップＳ１２２２からの処理では、クレジット管理部３０７は、要求先のユーザ（処理依頼者）が本人であるか否かを確認するために当該ユーザへパスワードの入力を要求し（ステップＳ１２２２）、その結果得られたパスワードと、上記図２９に示したユーザ情報の該当ユーザのパスワードとを比較することで認証処理を行う（ステップ１２２３）。

【０３１２】ステップＳ１２２３での認証に成功した場合、クレジット管理部３０７は、上記図２９のユーザ情報において該当ユーザに対して設定されているフラグが“ＴＲＵＥ”であることを確認した後、上記図１１のクレジット情報において該当ユーザに対して設定されているクレジット残量のうちの当該要求によって示されるクレジット量を、当該要求によって示される相手先のクレジットへ移す処理を実行する（ステップＳ１２２４）。尚、上記フラグが“ＦＡＬＳＥ”である場合には、ステップＳ１２２４での譲渡処理は失敗となる。また、譲渡しようとしたクレジット量（当該要求によって示されるクレジット量）が、上記図１１のクレジット情報において設定されているクレジット残量よりも多い場合にも、ステップＳ１２２４での譲渡処理は失敗となる。

【０３１３】ステップＳ１２２３での認証に失敗した場合、クレジット管理部３０７は、当該ユーザへエラーを通知する（ステップS１２２５）。

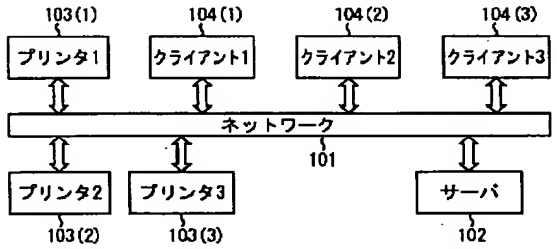
【０３１４】ステップＳ１２２４又はＳ１２２５の処理後、クレジット管理部３０７は、再びステップS１２０１へ戻り、処理要求待ち状態となる。

【０３１５】ステップS１２２１において、クレジット管理部３０７に対して要求された処理がクレジットの譲渡処理要求でなかった場合、クレジット管理部３０７は、当該処理要求が当該処理要求が管理オペレーションによる処理要求であるか否かを判別する（ステップS１２０６）。ここでの管理オペレーションとは、特別な権限を持ったユーザ（管理者）による上記図１１に示したクレジット情報の編集作業を指す。この判別の結果、管理オペレーションによる処理要求である場合には、ステップＳ１２０７からの処理に進み、そうでない場合には、後述するステップＳ１２１０からの処理に進む。

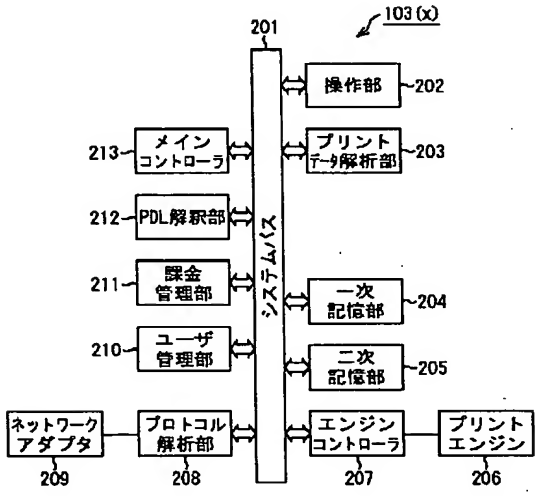
【０３１６】ステップＳ１２０７からの処理では、クレジット管理部３０７は、処理依頼者が管理オペレーションの実行権限（管理権限）を持っているユーザであるか否かを判別する（ステップS１２０７）。この判別の結果、管理権限を持っているユーザである場合、クレジット管理部３０７は、当該ユーザからの指示に従って、上記図１１のクレジット情報の編集作業を実行し（ステップS１２０８）、当該作業が正常に終了した場合に、再びステップS１２０１へ戻り、処理要求待ち状態とな

【図２４】第６の実施の形態において、上記プリンタの動作を説明するためのフローチャートである。
【図２５】第７の実施の形態において、上記クレジット管理部で上記クレジット情報と共に管理されている情報（使用頻度／課金率情報）を説明するための図である。
【図２６】第８の実施の形態において、上記クレジット管理部で管理されている上記クレジット情報を説明するための図である。
【図２７】第９の実施の形態において、上記クレジット管理部で管理されている上記クレジット情報を説明するための図である。
【図２８】第９の実施の形態において、上記クレジット管理部の動作を説明するためのフローチャートである。
【図２９】第１０の実施の形態において、上記ユーザ管理部で管理されている上記ユーザ情報を説明するための図である。
【図３０】第１０の実施の形態において、上記クレジット管理部の動作を説明するためのフローチャートである。
【符号の説明】
１００　ネットワークシステム
１０１　ネットワーク
１０２　サーバ
１０３（１），１０３（２），１０３（３）　プリンタ
１０４（１），１０４（２），１０４（３）　クライアント
２０１　システムバス
２０２　操作部
２０３　プリントデータ解析部
２０４　一次記憶部
２０５　二次記憶部
２０６　プリントエンジン
２０７　エンジンコントローラ
２０８　プロトコル解析部
２０９　ネットワークアダプタ
２１０　ユーザ管理部
２１１　課金管理部
２１２　ＰＤＬ解釈部
２１３　メインコントローラ
３０２　一次記憶部
３０３　二次記憶部
３０４　メインコントローラ
３０５　ネットワークアダプタ
３０６　プロトコル解析部
３０７　クレジット管理部
３０８　カウンタ管理部
３０９　ユーザ管理部
３１０　システムバス

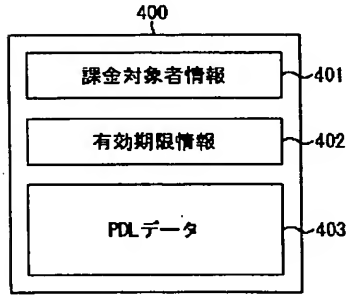
【図１】



【図２】



【図４】



【図２３】

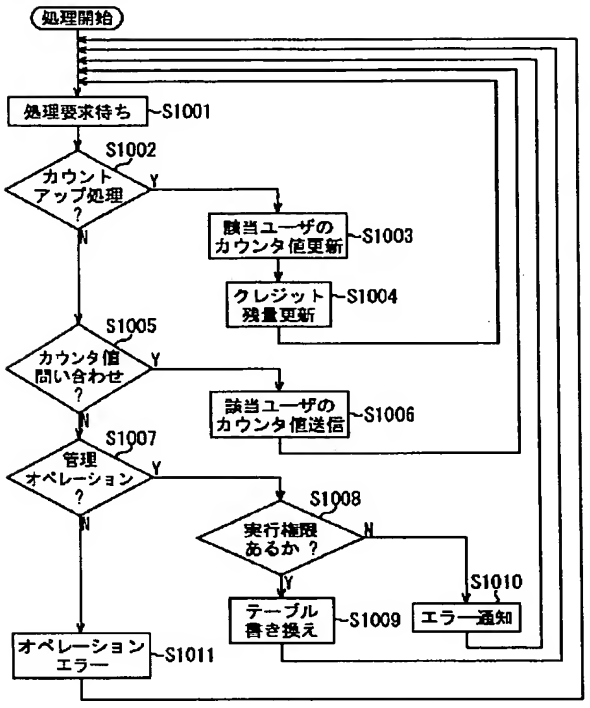
401-(b)

ページ番号	課金対象者
1-4	ID0002
5	ID0029
それ以外	ID0050

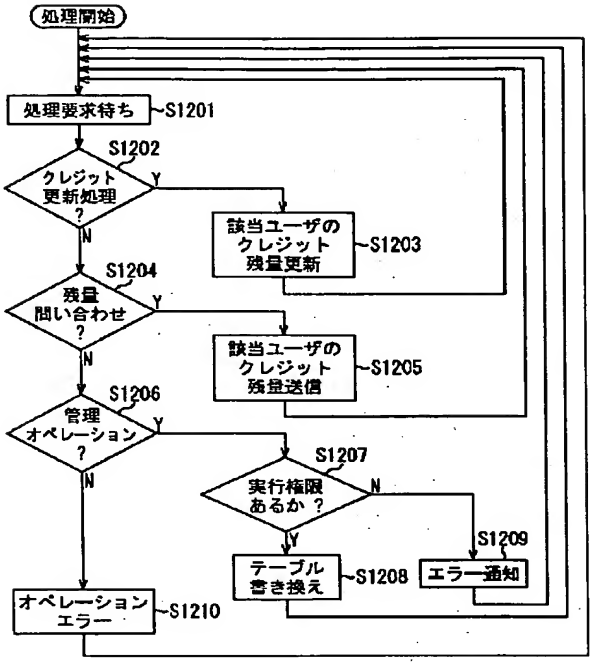
【図２５】

使用頻度	課金率
1～999	1
1000～1999	2
2000～4999	3
5000～	4

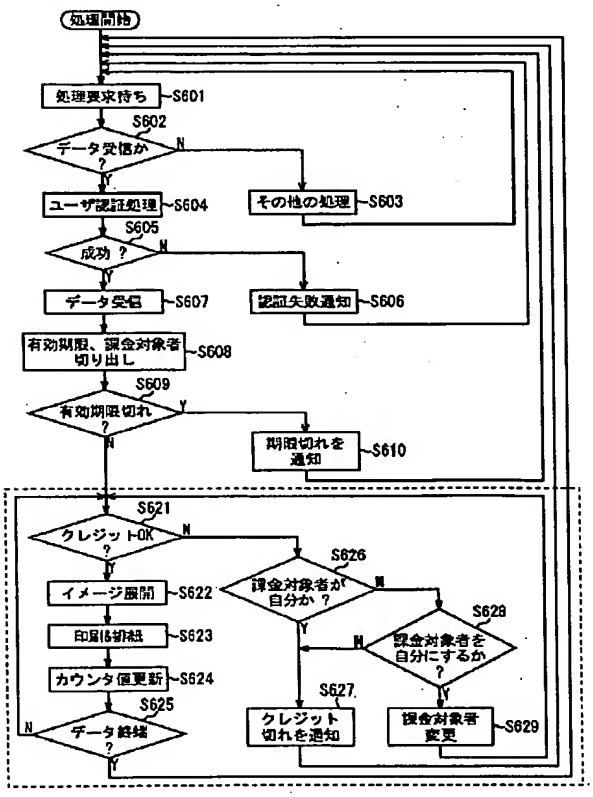
【図10】



【図12】



【図13】



【図15】

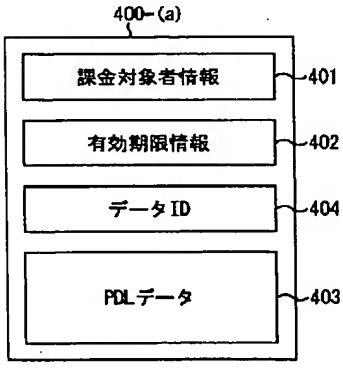
401-(a)

ユーザID
ID00006
ID00023
ID00079
⋮

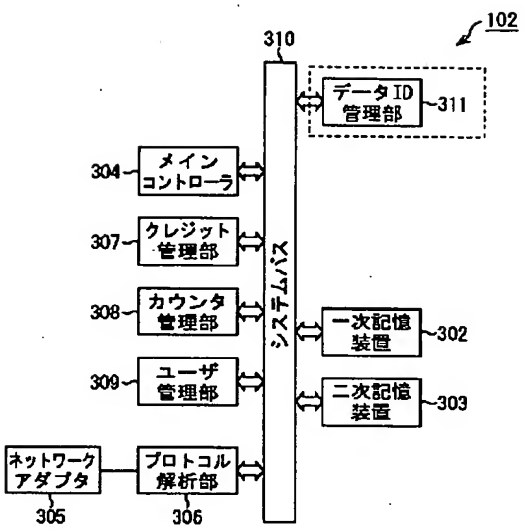
【図17】

データID	残り処理可能回数
D_ID00034	121
D_ID0002	0
D_ID003478	3
⋮	⋮

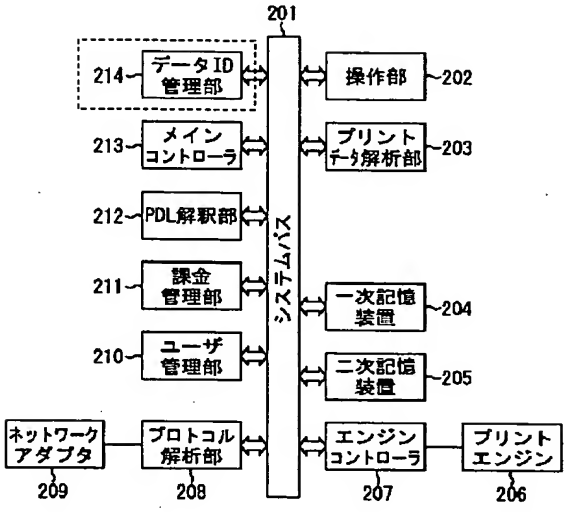
【図19】



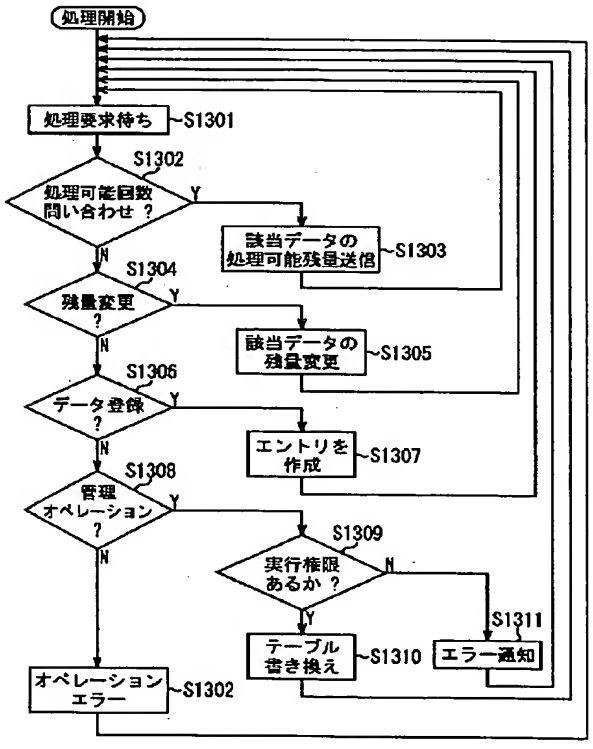
【図16】



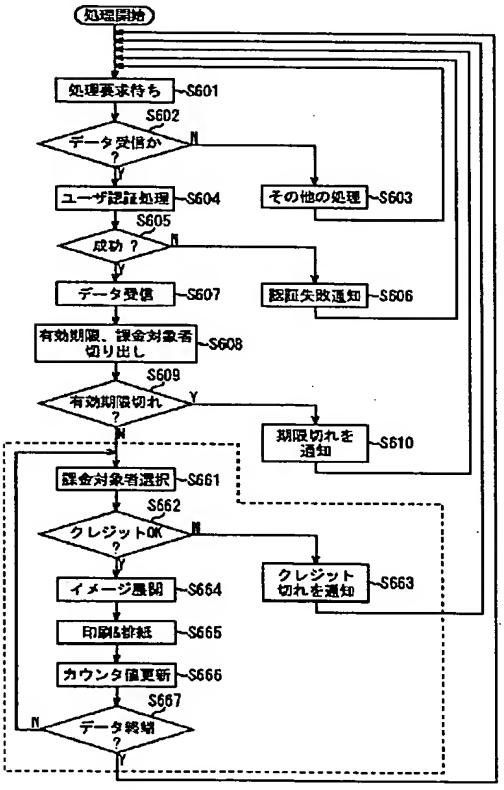
【図18】



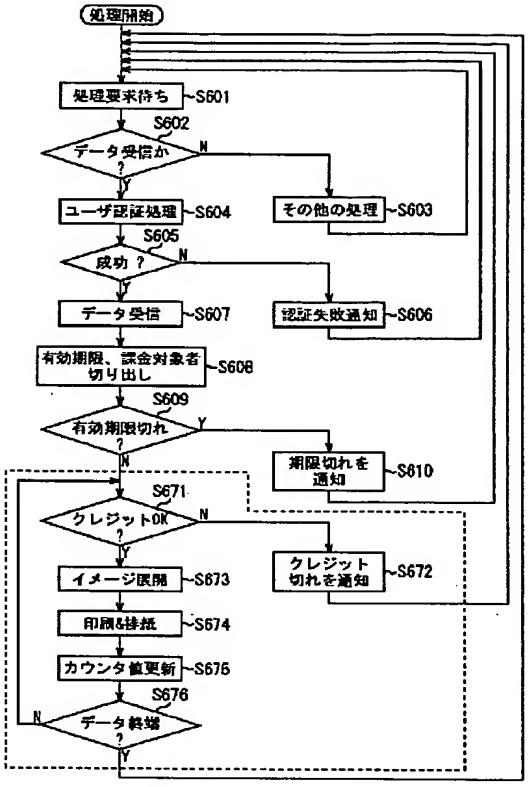
【図21】



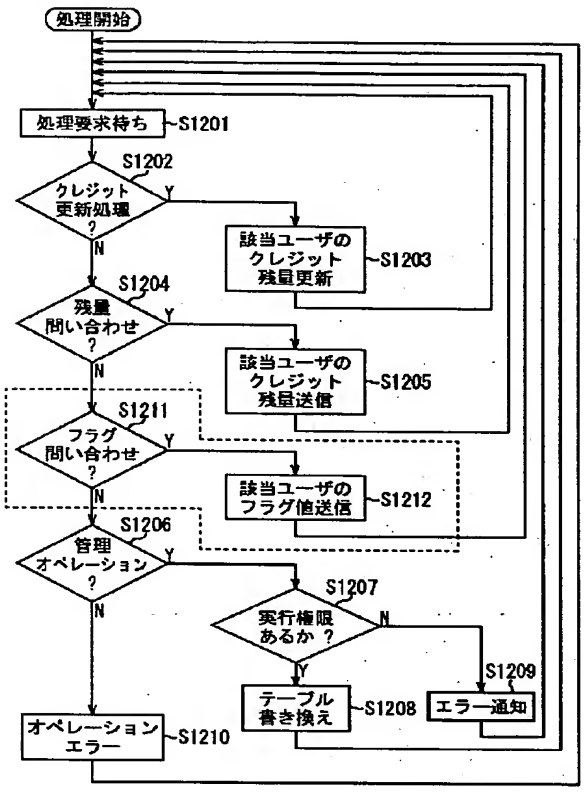
【図22】



【図24】


処理開始
処理要求待ち
S601
S602
データ受信か ?
N
Y
その他の処理
S603
ユーザ認証処理
S604
S605
成功 ?
N
Y
認証失敗通知
S606
データ受信
S607
有効期限、課金対象者 切り出し
S608
S609
有効期限切れ ?
Y
N
期限切れを通知
S610
S671
クレジットOK ?
N
Y
クレジット切れを通知
S672
イメージ展開
S673
印刷&排紙
S674
カウンタ値更新
S675
S676
データ終端 ?
N
Y

【図28】


処理開始
処理要求待ち
S1201
S1202
クレジット更新処理 ?
Y
N
該当ユーザのクレジット残量更新
S1203
S1204
残量問い合わせ ?
Y
N
該当ユーザのクレジット残量送信
S1205
S1211
フラグ問い合わせ ?
Y
N
該当ユーザのフラグ値送信
S1212
S1206
管理オペレーション ?
Y
N
S1207
実行権限あるか ?
N
Y
S1209
エラー通知
テーブル書き換え
S1208
オペレーションエラー
S1210

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CLAIMS

[Claim(s)]
[Claim 1] The information processor characterized by to be the information processor which transmits processing-object data and requests data processing to other equipment or systems which has the function of accounting to activation of data processing of arbitration, and the data processing concerned, and to have a transmitting means transmit the above-mentioned processing-object data of the information about the candidate of the above-mentioned accounting, and the information about the expiration date of activation of the above-mentioned data processing which added which information at least to equipment or a system besides the above.
[Claim 2] While performing data processing requested from the exterior, it is the information processor which has the function to perform accounting to activation of the data processing concerned. A receiving means to receive the processing-object data set as the object of the above-mentioned data processing to which the information about the candidate of the above-mentioned accounting was added at least from the above-mentioned exterior, The information processor characterized by having an accounting means to perform the above-mentioned accounting, based on the above-mentioned accounting candidate information on the processing-object data received with the above-mentioned receiving means.
[Claim 3] It is the information processor according to claim 2 which carries out [that have the control means which controls activation of the above-mentioned data processing, the above-mentioned receiving means receives the above-mentioned processing-object data with which the information about the expiration date of activation of the above-mentioned data processing was added, and the above-mentioned control means controls activation of the above-mentioned data processing based on the above-mentioned expiration date information on the processing-object data received with the above-mentioned receiving means, and] as the description.
[Claim 4] The resource activity permissible dose which is the amount of the resource used allowed by the control means which controls activation of the above-mentioned data processing, and activation of the above-mentioned data processing It has the management tool managed for every candidate of two or more accounting. The above-mentioned control means The information processor according to claim 2 characterized by controlling activation of the above-mentioned data processing based on whether the amount of the resource used generated in activation of the above-mentioned data processing exceeded the

resource activity permissible dose of the candidate corresponding to the above-mentioned accounting candidate information managed with the above-mentioned management tool.
[Claim 5] It is the information processor according to claim 4 carry out controlling activation of the above-mentioned data processing based on the above-mentioned continuation execution information further as the description when the above-mentioned management tool manages a part for the excess separately, and manages the continuation execution information about whether the above-mentioned data processing is continued and performed for every candidate of two or more above-mentioned accounting when the above-mentioned amount of the resource used exceeds the above-mentioned resource activity permissible dose, and the above-mentioned amount of the resource used exceeds the above-mentioned resource activity permissible dose in the above-mentioned control means.
[Claim 6] The above-mentioned management tool is an information processor according to claim 4 characterized by to perform processing which transfers a part or all of a resource activity permissible dose that manages the assignment information which shows whether it is possible to transfer a part or all of the above-mentioned resource activity permissible dose to the candidate of other accounting for every candidate of two or more above-mentioned accounting, and corresponds based on the assignment request from the management information concerned and the outside to the candidate of other accounting.
[Claim 7] It is the information processor according to claim 2 which is equipped with the management tool which manages the conditions of each data which constitutes the above-mentioned processing-object data for every candidate of two or more accounting, and is characterized by the above-mentioned accounting means changing the candidate of the above-mentioned accounting with activation of the above-mentioned data processing to each data which constitutes the above-mentioned processing-object data based on the management information of the above-mentioned management tool.
[Claim 8] It is the information processor according to claim 2 which is equipped with the control means which controls activation of the above-mentioned data processing, and the management tool which manages the information about the candidate of two or more accounting, and is characterized by the above-mentioned control means controlling activation of the above-mentioned data processing based on whether the information of the candidate applicable to the accounting candidate information on the above-mentioned processing-object data is managed with the above-mentioned management tool.
[Claim 9] It has the control means which controls activation of the above-mentioned data processing, and the management tool which manages the count of the above-mentioned data processing which can be performed for two or more processing-object data of every. The above-mentioned control means The count of activation of data processing to the processing-object data received with the above-mentioned receiving means The information processor according to claim 2 characterized by controlling activation of the above-mentioned data processing based on whether the count corresponding to the processing-object data concerned managed with the above-mentioned management tool which can be performed was exceeded.
[Claim 10] It is the information processor according to claim 2 which is equipped with the control means which controls activation of the above-mentioned data processing, and the

management tool which manages the rate of accounting according to the amount of the resource used generated with activation of the above-mentioned data processing, and is characterized by for the above-mentioned control means to perform accounting at the rate of accounting corresponding to the amount of the resource used generated in activation of the above-mentioned data processing based on the management information of the above-mentioned management tool.

[Claim 11] It is the information processor according to claim 2 which is equipped with the control means which controls activation of the above-mentioned data processing, and the management tool which manages the rate of accounting for every candidate of two or more accounting, and is characterized by the above-mentioned control means performing accounting at the rate of accounting of the candidate corresponding to the above-mentioned accounting candidate information managed with the above-mentioned management tool.

[Claim 12] It is the network system which two or more devices are the network systems which it comes to connect each other possible [a communication link] through a network, and is characterized by at least one device having the function of an information processor given in any of claims 1-11 they are among two or more above-mentioned devices.

[Claim 13] In case a client side requests data processing of arbitration to an external device or a system and performs the data processing concerned The transmitting step which transmits the processing-object data with which it is the accounting approach for performing accounting to activation of the data processing concerned, and the above-mentioned client side added the information about the candidate of the above-mentioned accounting to equipment or a system besides the above, The accounting approach characterized by including the accounting step which performs the above-mentioned accounting based on the accounting candidate information on the processing-object data received by the above-mentioned external device or the system.

[Claim 14] In case a client side requests data processing of arbitration to external equipment or an external system and performs the data processing concerned It is the data-processing control approach for performing accounting to activation of the data processing concerned, and activation of the data processing concerned. Were added to the processing-object data received by equipment or a system besides the above. Carrying out data processing by the information about a candidate and the above-mentioned external device, or system of the above-mentioned accounting is based on which information, even if there is little information on the expiration date allowed. The data-processing control approach characterized by including the processing step of the above-mentioned accounting and the above-mentioned data processing which performs at least any they are.

[Claim 15] The data-processing control approach according to claim 14 characterized by including the control step which inhibits activation of the above-mentioned data processing when a request of activation of the above-mentioned data processing is made at the outside of the expiration date shown using the expiration date information added to the above-mentioned processing-object data.

[Claim 16] The above-mentioned processing step is the data-processing control approach according to claim 14 characterized by including the step which performs accounting to the candidate who does not call on the client of the above-mentioned data processing, but is shown using the above-mentioned accounting candidate information when the

above-mentioned accounting candidate information is added to the above-mentioned processing-object data.

[Claim 17] The above-mentioned processing step is the data-processing control approach according to claim 14 characterized by including the step which considers that the client of the above-mentioned data processing is the candidate of the above-mentioned accounting, and performs accounting to the candidate concerned when the above-mentioned accounting candidate information is not added to the above-mentioned processing-object data.

[Claim 18] The management step which manages the resource activity permissible dose in activation of the above-mentioned data processing, and the amount of the resource used in the process of activation of the above-mentioned data processing for two or more accounting candidates of every, About the accounting candidate shown using the accounting candidate information added to the above-mentioned processing-object data When the above-mentioned amount of the resource used exceeds the above-mentioned resource activity ******** in process of activation of the above-mentioned data processing, The data-processing control approach according to claim 14 characterized by including the control step controlled to manage an exceeded part separately and to continue activation of the above-mentioned data processing or it interrupts activation of the above-mentioned data processing at the event, and it makes the above-mentioned accounting candidate into the client of the above-mentioned data processing.

[Claim 19] The above-mentioned processing step is the data-processing control approach according to claim 14 characterized by including the step which sets up an accounting candidate according to an individual for every specific conditions of each data which constitutes the above-mentioned processing-object data, and changes an accounting candidate with activation of data processing to the above-mentioned processing-object data based on the setups concerned.

[Claim 20] The above-mentioned processing step is the data-processing control approach according to claim 14 characterized by including the step which changes an accounting candidate with the activation of data processing [as opposed to / set up an accounting candidate according to an individual for every data, and / the above-mentioned processing-object data based on the setups concerned] which constitutes the above-mentioned processing-object data.

[Claim 21] The data-processing control approach according to claim 14 characterized by including the control step controlled to inhibit activation of data processing to the above-mentioned processing-object data when the information applicable to the management step which manages two or more accounting candidate information, and the accounting candidate information added to the above-mentioned processing-object data is not managed at the above-mentioned management step.

[Claim 22] The management step which manages the count which can be processed for two or more processing-object data of every, While permitting data processing to the processing-object data received by equipment or a system besides the above among [which can be processed / count] the above-mentioned processing-object data managed at the above-mentioned management step The data-processing control approach according to claim 14 characterized by including the control step controlled to inhibit activation of the above-mentioned data processing when the decrement of the count of the above which can

be processed is carried out for every activation of data processing and the count of activation of the above-mentioned data processing exceeds the count of the above which can be processed.

[Claim 23] The above-mentioned processing step is the data-processing control approach according to claim 14 characterized by including the step which performs accounting at the rate of accounting based on the amount of the resource used generated in activation of data processing to the above-mentioned processing-object data.

[Claim 24] The above-mentioned processing step is the data-processing control approach according to claim 14 characterized by including the step which performs accounting at the rate of accounting applicable to the accounting candidate information added to the above-mentioned processing-object data managed at the above-mentioned management step including the management step which manages the rate of accounting for two or more accounting candidates of every.

[Claim 25] The data-processing control approach according to claim 14 characterized by including the management step which manages the information for transferring a part or all of a resource activity permissible dose in activation of the above-mentioned data processing to other accounting candidates for two or more accounting candidates of every.

[Claim 26] The storage characterized by storing the processing program for carrying out the function of an information processor given in any of claims 1-11 they are, or the function of a network system according to claim 12 possible [read-out of a computer].

[Claim 27] The storage characterized by storing the processing step of the accounting approach according to claim 13 or the data-processing control approach given in any of claims 14-25 they are possible [read-out of a computer].

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the storage which stored the processing step for carrying an information processor, a network system, the accounting approach, the data-processing control approach, and it out used for the accounting equipment or the system which it is not the client of data processing to a device, and can make the candidate of accounting into the others other than processing clients, such as a data origination person and a distribution person, possible [read-out of a computer].

[0002]

[Description of the Prior Art] In the information processor which has an accounting function conventionally After authentication by the user ID for identifying a processing client (henceforth a "user" or a "resource user"), Using the storage and the storage region of arbitration as a counter, the counter for processing clients is updated according to the amount of a processing client's resource used, and it is made after activity termination of a processing client's resource as [compute / from the amount of the resource used shown with the value of a processing client's counter / the amount of money (toll)].

[0003]

[Problem(s) to be Solved by the Invention] However, by the conventional accounting approach which was mentioned above, the object of accounting receives the amount of the resource used generated when a processing client performed processing to a device. That is, the candidate of accounting turns into a client of data processing to a device. For this reason, although it can realize comparatively simply, the control mechanism of accounting by the accounting approach concerned is complicated, and when building the accounting system which was rich in flexibility, it cannot offer sufficient function. For example, although needs which say that the candidate of accounting considers as the others other than processing clients, such as a data origination person, a distribution person, etc. instead of the client of data processing to a device, have high possibility of becoming effective when realizing the electronic intelligence distribution environment where the Internet etc. was used, or the accounting system at the time of the new service provision using this, construction of the accounting system concerned by the conventional accounting approach is difficult.

[0004] Then, this invention aims at offering the storage which stored the processing step for carrying an information processor, a network system, the accounting approach, the data-processing control approach, and it out which accomplished in order to remove the above-mentioned fault, and can offer sufficient accounting function even if it is complicated and is the case where the accounting system which was rich in flexibility is built possible [read-out of a computer].

[0005]

[Means for Solving the Problem] As opposed to other equipment or systems by which the 1st invention has the function of accounting to activation of data processing of arbitration, and the data processing concerned in the bottom of this object It is the information processor which transmits processing-object data and requests data processing. It is characterized by having a transmitting means to transmit the above-mentioned processing-object data of the information about the candidate of the above-mentioned accounting, and the information about the expiration date of activation of the above-mentioned data processing which added which information at least to equipment or a system besides the above.

[0006] The 2nd invention is an information processor which has the function to perform accounting to activation of the data processing concerned while performing data processing requested from the exterior. A receiving means to receive the processing-object data set as the object of the above-mentioned data processing to which the information about the candidate of the above-mentioned accounting was added at least from the above-mentioned exterior, It is characterized by having an accounting means to perform the above-mentioned accounting, based on the above-mentioned accounting candidate information on the processing-object data received with the above-mentioned receiving means.

[0007] The 3rd invention is equipped with the control means which controls activation of the above-mentioned data processing in the 2nd above-mentioned invention, the above-mentioned receiving means receives the above-mentioned processing-object data with which the information about the expiration date of activation of the above-mentioned data processing was added, and it carries out that the above-mentioned control means

controls activation of the above-mentioned data processing based on the above-mentioned expiration date information on the processing-object data received with the above-mentioned receiving means as the description.

[0008] The control means by which the 4th invention controls activation of the above-mentioned data processing in the 2nd above-mentioned invention, It has the management tool which manages the resource activity permissible dose which is the amount of the resource used allowed by activation of the above-mentioned data processing for every candidate of two or more accounting. The above-mentioned control means Based on whether the amount of the resource used generated in activation of the above-mentioned data processing exceeded the resource activity permissible dose of the candidate corresponding to the above-mentioned accounting candidate information managed with the above-mentioned management tool, it is characterized by controlling activation of the above-mentioned data processing.

[0009] The 5th invention is set to the 4th above-mentioned invention. The above-mentioned management tool The continuation execution information about whether when the above-mentioned amount of the resource used exceeds the above-mentioned resource activity permissible dose, manage a part for the excess separately, and the above-mentioned data processing is continued and performed It manages for every candidate of two or more above-mentioned accounting, and when, as for the above-mentioned control means, the above-mentioned amount of the resource used exceeds the above-mentioned resource activity permissible dose, it is characterized by controlling activation of the above-mentioned data processing based on the above-mentioned continuation execution information further.

[0010] The 6th invention manages the assignment information which shows that the above-mentioned management tool can transfer a part or all of the above-mentioned resource activity permissible dose to the candidate of other accounting for every candidate of two or more above-mentioned accounting, and is characterized in the 4th above-mentioned invention by to perform the processing which transfers a part or all of a resource activity permissible dose corresponding to the candidate of other accounting based on the assignment request from the management information concerned and the outside.

[0011] The 7th invention is equipped with the management tool which manages the conditions of each data which constitutes the above-mentioned processing-object data for every candidate of two or more accounting in the 2nd above-mentioned invention, and the above-mentioned accounting means is characterized by to change the candidate of the above-mentioned accounting with activation of the above-mentioned data processing to each data which constitutes the above-mentioned processing-object data based on the management information of the above-mentioned management tool.

[0012] The 8th invention is equipped with the control means which controls activation of the above-mentioned data processing, and the management tool which manages the information about the candidate of two or more accounting in the 2nd above-mentioned invention, and the above-mentioned control means is characterized by to control activation of the above-mentioned data processing based on whether the information of the candidate applicable to the accounting candidate information on the above-mentioned

processing-object data is managed with the above-mentioned management tool.

[0013] The control means by which the 9th invention controls activation of the above-mentioned data processing in the 2nd above-mentioned invention, It has the management tool which manages the count of the above-mentioned data processing which can be performed for two or more processing-object data of every. The above-mentioned control means Based on whether the count of activation of data processing to the processing-object data received with the above-mentioned receiving means exceeded the count corresponding to the processing-object data concerned managed with the above-mentioned management tool which can be performed, it is characterized by controlling activation of the above-mentioned data processing.

[0014] The 10th invention is equipped with the control means which controls activation of the above-mentioned data processing, and the management tool which manages the rate of accounting according to the amount of the resource used generated with activation of the above-mentioned data processing in the 2nd above-mentioned invention, and the above-mentioned control means carries out performing accounting based on the management information of the above-mentioned management tool at the rate of accounting corresponding to the amount of the resource used generated in activation of the above-mentioned data processing as the description.

[0015] The 11th invention is equipped with the control means which controls activation of the above-mentioned data processing, and the management tool which manages the rate of accounting for every candidate of two or more accounting in the 2nd above-mentioned invention, and the above-mentioned control means is characterized by performing accounting at the rate of accounting of the candidate corresponding to the above-mentioned accounting candidate information managed with the above-mentioned management tool.

[0016] The 12th invention is a network system with which it comes to connect two or more devices of each other possible [a communication link] through a network, and at least one device is characterized by having the function of an information processor given in any of claims 1-11 they are among two or more above-mentioned devices.

[0017] In case a client side requests data processing of arbitration to an external device or a system and performs the data processing concerned, the 13th invention The transmitting step which transmits the processing-object data with which it is the accounting approach for performing accounting to activation of the data processing concerned, and the above-mentioned client side added the information about the candidate of the above-mentioned accounting to equipment or a system besides the above, It is characterized by including the accounting step which performs the above-mentioned accounting based on the accounting candidate information on the processing-object data received by the above-mentioned external device or the system.

[0018] In case a client side requests data processing of arbitration to external equipment or an external system and performs the data processing concerned, the 14th invention It is the data-processing control approach for performing accounting to activation of the data processing concerned, and activation of the data processing concerned. Were added to the processing-object data received by equipment or a system besides the above. Carrying out data processing by the information about a candidate and the above-mentioned external device, or system of the above-mentioned accounting is characterized by the thing

containing the processing step of the above-mentioned accounting and the above-mentioned data processing which performs any at least of the information on the expiration date allowed based on which information at least.

[0019] In the 14th above-mentioned invention, 15th invention is characterized by including the control step which inhibits activation of the above-mentioned data processing, when a request of activation of the above-mentioned data processing is made at the outside of the expiration date shown using the expiration date information added to the above-mentioned processing-object data.

[0020] In the 14th above-mentioned invention, the above-mentioned processing step does not depend the 16th invention on the client of the above-mentioned data processing, when the above-mentioned accounting candidate information is added to the above-mentioned processing-object data, but it is characterized by including the step which performs accounting to the candidate shown using the above-mentioned accounting candidate information.

[0021] 17th invention is characterized by the above-mentioned processing step containing the step which considers that the client of the above-mentioned data processing is the candidate of the above-mentioned accounting, and performs accounting to the candidate concerned, when the above-mentioned accounting candidate information is not added to the above-mentioned processing-object data in the 14th above-mentioned invention.

[0022] The management step to which the 18th invention manages the resource activity permissible dose in activation of the above-mentioned data processing, and the amount of the resource used in the process of activation of the above-mentioned data processing for two or more accounting candidates of every in the 14th above-mentioned invention, About the accounting candidate shown using the accounting candidate information added to the above-mentioned processing-object data When the above-mentioned amount of the resource used exceeds the above-mentioned resource activity ******** in process of activation of the above-mentioned data processing, Or it interrupts activation of the above-mentioned data processing at the event, and it makes the above-mentioned accounting candidate into the client of the above-mentioned data processing, it is characterized by including the control step controlled to manage an exceeded part separately and to continue activation of the above-mentioned data processing.

[0023] 19th invention is characterized by for the above-mentioned processing step setting up an accounting candidate according to an individual for every specific conditions of each data which constitutes the above-mentioned processing-object data, and containing the step which changes an accounting candidate with activation of data processing to the above-mentioned processing-object data based on the setups concerned in the 14th above-mentioned invention.

[0024] 20th invention is characterized by the above-mentioned processing step containing the step which changes an accounting candidate with the activation of data processing [as opposed to / set up an accounting candidate according to an individual for every data, and / the above-mentioned processing-object data based on the setups concerned] which constitutes the above-mentioned processing-object data in the 14th above-mentioned invention.

[0025] It carries out that the 21st invention contains the control step controlled in the 14th

above-mentioned invention to inhibit activation of data processing to the above-mentioned processing-object data when the information applicable to the accounting candidate information added to the above-mentioned processing-object data is not managed at the above-mentioned management step, the management step which manages two or more accounting candidate information, and as the description.

[0026] The management step to which the 22nd invention manages the count which can be processed for two or more processing-object data of every in the 14th above-mentioned invention, While permitting data processing to the processing-object data received by equipment or a system besides the above among [which can be processed / count] the above-mentioned processing-object data managed at the above-mentioned management step When the decrement of the count of the above which can be processed is carried out for every activation of data processing and the count of activation of the above-mentioned data processing exceeds the count of the above which can be processed, it is characterized by including the control step controlled to inhibit activation of the above-mentioned data processing.

[0027] 23rd invention is characterized by the above-mentioned processing step containing the step which performs accounting at the rate of accounting based on the amount of the resource used generated in activation of data processing to the above-mentioned processing-object data in the 14th above-mentioned invention.

[0028] It carries out that the above-mentioned processing step contains the step which performs accounting at the rate of accounting applicable to the accounting candidate information added to the above-mentioned processing-object data managed at the above-mentioned management step including the management step to which the 24th invention manages the rate of accounting for two or more accounting candidates of every in the 14th above-mentioned invention as the description.

[0029] 25th invention is characterized by including the management step which manages the information for transferring a part or all of a resource activity permissible dose in activation of the above-mentioned data processing to other accounting candidates for two or more accounting candidates of every in the 14th above-mentioned invention.

[0030] 26th invention is characterized by being the storage which stored the processing program for carrying out the function of an information processor given in any of claims 1-11 they are, or the function of a network system according to claim 12 possible [read-out of a computer].

[0031] 27th invention is characterized by being the storage which stored the processing step of the accounting approach according to claim 13 or the data-processing control approach given in any of claims 14-25 they are possible [read-out of a computer].

[0032]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained using a drawing.

[0033] <Gestalt of the 1st operation> this invention is applied to the network system 100 which has an accounting function as shown in drawing 1 . Although the network system 100 in the gestalt of this operation is made as [perform / to the user (processing client) who requested data processing / accounting according to the amount of the resource used in the device (above-mentioned drawing 1 the printer 103 (1) - 103 (3)) by which the data

processing concerned is performed] It is made as [be / making the candidate of accounting into the others other than processing clients, such as a data origination person, a distribution person, etc. instead of the client of data processing to a device, especially / possible]. Hereafter, the configuration and actuation of a network system 100 in the gestalt of this operation are explained concretely.

[0034] (The whole network-system 100 configuration) a network system -- 100 -- the above -- drawing 1 -- being shown -- as -- data processing -- carrying out -- a device -- ****** -- plurality -- a printer -- 103 -- (-- one --) - 103 -- (-- three --) -- plurality -- a user (client) -- a side -- a client -- a device -- 104 -- (-- one --) - 104 -- (-- three --) -- a server -- 102 -- a network -- 101 -- minding -- mutual -- a communication link -- being possible -- as -- connecting -- having had -- a configuration -- ** -- carrying out -- **** .

[0035] since [in addition,] explanation is easy in above-mentioned drawing 1 -- three printer 103 (1) - although 103 (3), three client device 104(1) -104(3) and the single server 102 are illustrating the configuration connected to the network 101, it is not restricted to the number of connection of these devices since [moreover,] explanation is easy -- printer 103 (1) - the following explanation is given paying attention to the client device 104 (X) of the arbitration in 103 (printer 103(X) client device 104(1) -104(3 of the arbitration in 3)).

[0036] The client device 104 (X) has the terminal capabilities for inputting the data for printing in a printer 103 (X) to the user of this system 100.

[0037] A printer 103 (X) receives the data for printing inputted by the user from the client device 104 (X), and generates the content of the data concerned, and the output object (print) of the request specified by the user from the print facility which a self-printer has. Moreover, especially the printer 103 (X) has not the user (processing client) that inputted the data for printing by the client device 104 of the gestalt of this operation (X) by which it is characterized most but the function to perform accounting based on the accounting candidate information included in the data for printing concerned.

[0038] A server 102 has the function (accounting function manager) of management of the accounting in a printer 103 (X), and the function (user management function) to manage a user, unitary. For this reason, the printer 103 (X) had the function for accessing to the accounting function manager and user management function of a server 102, and, thereby, has realized offering the configuration of accounting by this invention as the this system 100 whole.

[0039] (Configuration of a printer 103 (X)) Drawing 2 shows an example of the internal configuration of the printer 103 of above-mentioned drawing 1 (X).

[0040] As a printer 103 (X) is shown in above-mentioned drawing 2 The controller (engine controller) 207 of a control unit 202, the print data analysis section 203, the memory section 204, the secondary-storage section 205, and the print engine 206, the protocol analysis section 208 of a network adaptor 209, the user management section 210, the accounting Management Department 211, It has the PDL interpretation section 212 and the Maine controller 213, and each of these configuration sections (module) 202-213 are connected so that it can communicate mutually through the system bus 201 which carries transmission and reception of data, a control signal, etc.

[0041] In addition, the internal configuration of the printer 103 (X) shown in above-mentioned drawing 2 is an example of a configuration of having used for explanation

of the gestalt of this operation, and as long as the configuration of a publication is filled to the claim of this invention, this invention is applied even when what kind of configuration is taken.

[0042] A control unit 202 is a part in which the actuation for outputting and inputting various actuation to a user's printer 103 (X) is made including an unit or two or more keys, and a display.

[0043] The primary storage section 204 and the secondary-storage section 205 include a semi-conductor storage means, a magnetic-recording means, etc. which are used in order for a printer 103 (X) to use it for printing processing or to store the various data which a printer 103 (X) uses temporarily or in the long run, respectively.

[0044] A network adaptor 209 is for transmitting and receiving data with the external instrument on a network 101. The protocol analysis section 208 is processed according to the protocol which supports the data which the network adaptor 209 received, and has the function changed into the format which can be processed within a printer 103 (X).

[0045] In addition, the data after data conversion obtained by the protocol analysis section 208 are the "processing-object data" (henceforth "the data for printing") which made reference by the claim of this invention. About the detail of this data, it mentions later. However, about the detailed function of a network adaptor 209 and the protocol analysis section 208, since it is not the essence of this invention, it omits.

[0046] The PDL interpretation section 212 has the function to change the data for printing (PDL data) into an image data. Physical printing processing is performed by sending the image data obtained in the PDL interpretation section 212 to the print engine 206 through the engine controller 207. In addition, about the detailed function of the PDL interpretation section 212, since it is not the essence of this invention, it omits.

[0047] The print data analysis section 203 is analyzing the data for printing supplied from the protocol analysis section 208, and has the function to separate accounting candidate information, expiration date information, and the information on PDL data etc. from the data concerned.

[0048] Since the accounting Management Department 211 has taken the gestalt which gives the configuration concerned to a server 102 with the gestalt of this operation as mentioned above although it is a configuration for performing accounting in actuation of a printer 103 (X), the accounting Management Department 211 in the gestalt of this operation offers only the access means against the accounting Management Department later mentioned in a server 102.

[0049] Although the user management section 210 is the configuration of performing user management processing, since the gestalt which gives the configuration concerned to a server 102 is taken, with the gestalt of this operation, the user management section 210 in the gestalt of this operation offers only the access means against the user management section later mentioned in a server 102 like [this] the accounting Management Department 211.

[0050] In addition, this invention is applied when the same function as the accounting Management Department and the user management section which a server 102 has is mounted [as opposed to / with a natural thing / the accounting Management Department 211 of a printer 103 (X), and the user management section 210] directly.

[0051] The Maine controller 213 has the function to manage the motion control of the whole printer 103 (X). for example, the Maine controller 213 is carrying out reading appearance of the processing program memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade, and performing it to it, and carries out the function to manage the motion control of the whole printer 103 (X).

[0052] (Configuration of a server 102) Drawing 3 shows an example of the internal configuration of the server 102 of above-mentioned drawing 1 .

[0053] It connects so that a server 102 can communicate mutually through the system bus 310 in which is equipped with the memory section 302, the secondary-storage section 303, the protocol analysis section 306 of a network adaptor 305, the user management section 309, the counter Management Department 308, the credit Management Department 307, and the Maine controller 304 as shown in above-mentioned drawing 3 , and each of these configuration sections (module) 302-309 carry transmission and reception of data, a control signal, etc.

[0054] In addition, the internal configuration of a server 102 shown in above-mentioned drawing 3 is an example of a configuration of having used for explanation of the gestalt of this operation, and as long as the configuration of a publication is filled to the claim of this invention, this invention is applied even when what kind of configuration is taken.

[0055] The primary storage section 302 and the secondary-storage section 303 include a semi-conductor storage means, a magnetic-recording means, etc. which are used in order to use it for the various processings by the server 102 or to store the various data which a server 102 uses temporarily or in the long run, respectively.

[0056] A network adaptor 305 is for transmitting and receiving data with the external instrument on a network 101. The protocol analysis section 306 is processed according to the protocol which supports the data which the network adaptor 305 received, and has the function changed into the format which can be processed within a server 102.

[0057] The user management section 309 has the function to manage the user using this system 100. For example, the user management section 309 has functions, such as attesting a processing client with a password registration of a first time user, deletion of the existing user, the check of whether to have the authority for a processing client to perform processing, and if needed. It is a function for the response to the inquiry emitted during processing of processing-object data about the check of whether to have the authority for a processing client to perform processing, and an attesting [with a password]-if needed-processing client function, and a manager carries out about registration of a first time user, and the function of deletion of the existing user at the times other than processing of processing-object data.

[0058] The counter Management Department 308 has the function to manage the amount of the resource used as an accounting candidate in the user managed by the user management section 309. For example, the counter Management Department 308 updates an accounting candidate's counter value according to the amount of the resource used by the printer 103 (X). Synchronizing with modification of this counter value, the value of the credit of the corresponding accounting candidate managed by the credit Management Department 307 is also updated. A "credit" here is a "resource activity permissible dose" which has made reference in the claim of this invention.

[0059] The credit Management Department 307 has the function to manage the accounting limit which an accounting candidate can process. for example, the credit Management Department 307 updates according to the amount of the resource used after that, is alike to the client machine 104 (X) in the phase which reached the accounting limit, and notifies that while it follows directions from a manager and initializes or changes the value of the above-mentioned accounting limit.

[0060] The Maine controller 304 has the function to manage the motion control of the server 102 whole. for example, the Maine controller 304 is carrying out reading appearance of the processing program memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade, and performing it to it, and carries out the function to manage the motion control of the server 102 whole.

[0061] (Actuation of a printer 103 (X)) Drawing 4 shows an example of the format of the processing-object data 400 (data for printing) in the gestalt of this operation first. As shown in above-mentioned drawing 4 , the processing-object data 400 include the accounting candidate information 401 which is an accounting candidate's information that it is charged actually, when a processing client inputs the processing-object data 400 as the expiration date information 402 which is the information on the expiration date of the processing-object data 400 to a printer 103 (X) in addition to the PDL data 403 required for the usual printing image formation.

[0062] In addition, in the processing-object data 400 in the gestalt of this operation, two or more the implementation approaches are considered about in what kind of format the information on the expiration date information 402 and accounting candidate information 401 grade is actually stored in the processing-object data 400. However, this invention will be applied, if the information on the expiration date information 402 and accounting candidate information 401 grade is constituted without being dependent on the format format at this time so that it can add and dissociate to the PDL data 403 according to the format of arbitration. Moreover, in the gestalt of this operation, each information on the expiration date information 402 stored in the processing-object data 400, the accounting candidate information 401, and the PDL data 403 supposes that it is disengageable only by the print data analysis section 203 shown in above-mentioned drawing 2 . The information on the expiration date information 402 and accounting candidate information 401 grade is very important data related to accounting, and the reason is for preventing the alteration and improper use by the 3rd person. For this reason, the information on the expiration date information 402 and accounting candidate information 401 grade is generated by the special approach from the field of security, and is added to the PDL data 403 by the special approach, and is made as [guarantee / by the still more nearly special approach / that it is disengageable only in the print data analysis section 203]. however, the special approach here itself is an approach which is not essential and satisfies the above-mentioned requirements for this invention -- if it becomes, even if it will be what kind of approach -- application -- possible -- the limitation -- this invention is applied.

[0063] Drawing 5 is drawing having shown the detail of the accounting candidate information 401 shown in above-mentioned drawing 4 . It not only charges uniformly, but according to specific conditions (accounting conditions), it can set up an accounting candidate according to an individual to the processing-object data 400 at the time of data

processing by considering as the information on a format that the information 401 for accounting is shown in above-mentioned drawing 5 . With the gestalt of this operation, it is considering as the conditions which set up the accounting candidate at the time of processing the above-mentioned accounting conditions about color ** 1 JI and ****** 1 JI in the PDL data 403 according to an individual. It is possible to consider not only as conditions but as various conditions of setting up the accounting candidate at the time of processing color ** 1 JI and a black-and-white page as the above-mentioned accounting conditions with a natural thing according to an individual. Also in this case, this invention is applied as long as the configuration in the claim of this invention is filled.

[0064] Drawing 6 shows actuation of a printer 103 (X). For example, the Maine controller 213 of a printer 103 (X) reads and performs the processing program according to the flow chart of above-mentioned drawing 6 memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade. Thereby, a printer 103 (X) operates as follows.

[0065] The Maine controller 213 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S601). It does not change from it until a processing demand is outputted from this condition from which the configuration section (component) of each configuration sections 202-212 on a system bus 201.

[0066] If a processing demand is outputted from which the configuration section (component) of each configuration sections 202-212 on a system bus 201, the Maine controller 213 will distinguish whether the processing demand concerned is data reception by the network adaptor 209 and the protocol analysis section 208 (step S602).

[0067] In step S602, ****** which was data reception by the network adaptor 209 and the protocol analysis section 208, and it mean that a certain processing request from the client machine 104 (X) was made. Therefore, it progresses to processing from step S604 mentioned later in this case. On the other hand, since processings (for example, processing which followed directions from the control unit 202) within a printer 103 (X) are meant when it is not data reception by the network adaptor 209 and the protocol analysis section 208, after performing the processing concerned (step S603), it will be in return and the state waiting for a processing demand to step S601 again.

[0068] In addition, in step S603, although there are various processings as processing performed actually, since it is the processing which does not have direct relation to the effectiveness of this invention, the detailed explanation is omitted.

[0069] In the processing from step S604, the Maine controller 213 performs authentication processing of a user (step S604). User authentication processing here includes the processing for confirming whether the user (processing client) who threw in the data for printing has the activation authority of processing in the client machine 104 (X). Specifically, the Maine controller 213 transmits User Information from the client machine 104 (X) to a server 102 through the user management section 210. A server 102 checks the account information of the user who has managed by user management 309 by above-mentioned User Information from a printer 103 (X), and returns the status based on the check result.

[0070] The Maine controller 213 distinguishes whether authentication processing was successful by the above-mentioned status returned from the server 102 (step S605).

[0071] In step S605, when authentication processing is successful, it progresses to processing from step S607 mentioned later. On the other hand, when authentication processing goes wrong, advice of authentication failure is published to the client machine 104 (X) which published the processing demand (step S606), and it will be in return and the state waiting for a processing demand to step S601 again.

[0072] In the processing from step S607, the Maine controller 213 performs reception of the data from the client machine 104 (X) (step S607). A network adaptor 209 and the protocol analysis section 208 receive the data transmitted from the client machine 104 (X), and specifically, the Maine controller 213 carries out directions of operation to each of these configuration sections so that a primary storage 204 or a secondary storage 205 may memorize the received data concerned.

[0073] The Maine controller 213 carries out directions of operation to the print data analysis section 202 so that the expiration date information 402 on the data concerned and the accounting candidate information 401 grade which are contained in the data concerned may be separated from the received data (processing-object data 400) memorized to the primary storage 204 or the secondary storage 205 (step S608).

[0074] In addition, about the content of concrete processing of the print data analysis section 203 and its procedure in step S608, depending on the DS of processing-object data, and encoding/decoding method of the data concerned, since it is not the essence of this invention, the detailed explanation is omitted. Moreover, although various processing patterns can be considered when performing the processing concerned after finishing receiving all the packets that received and that perform the processing concerned for each packet of every, or constitute data also about the data reception of step S607 In step S608, if it has guaranteed that required information can be eventually started from received data, any processing patterns can be applied and this invention will be applied in this limitation.

[0075] The Maine controller 213 using the expiration date information 402 acquired at step S608 The Maine controller 213 which distinguishes whether the expiration date of the processing-object data 400 (specifically PDL data 403) has run out (step S609) The date and time of day which are shown using the expiration date information 402 are compared with the current date and the time of day which are shown by the internal timer of a printer 103 (X). A current date and time of day (timing of a processing request) distinguish whether it is over the date and time of day which are shown using the expiration date information 402.

[0076] In step S609, when the expiration date of the processing-object data 400 has run out, expiration is notified to the client machine 104 (X) (step S610), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the expiration date of the processing-object data 400 has not run out, processing from the following step S611 is performed.

[0077] In the processing from step S611, the Maine controller 213 is supplying the PDL data 403 acquired at step S608 to the PDL interpretation section 212, and is developed to an image image (step S611).

[0078] The Maine controller 213 distinguishes the accounting candidate who should charge at the time of processing of the image image data concerned according to the image image data acquired at step S613, and the accounting conditions (refer to above-mentioned

drawing 5) shown using the accounting candidate information 402 acquired at step S608 (step S612).

[0079] The Maine controller 213 checks an accounting candidate's credit distinguished at step S612 (step S613). For example, the Maine controller 213 supplies the accounting candidate information distinguished at step S612 to the credit Management Department 307 of a server 102 through the user management section 210, and requests the check of whether the credit of the accounting candidate concerned remains in processing of the processing-object data 400 by the complement.

[0080] In step S613, when an accounting candidate's credit does not already remain, a credit piece is notified to the client machine 104 (X) (step S614), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the residue of an accounting candidate's credit exists, processing from the following step S615 is performed.

[0081] In the processing from step S615, the Maine controller 213 performs processing of the processing-object data 400 (step S615). With the gestalt of this operation, the processing concerned is equivalent to printing processing. For this reason, for example, the Maine controller 213 is supplying the image image data acquired at step S611 to the print engine 206 through the engine controller 207, and performs printing processing to the image image data concerned.

[0082] The Maine controller 213 updates the value of an accounting candidate's counter by the counter Management Department 308 of a server 102 through the accounting Management Department 211 (step 616). In connection with this, the residue of an accounting candidate's credit managed at the credit Management Department 307 of a server 102 is also updated.

[0083] The Maine controller 213 is the processing so far, and when the PDL data 403 in the processing-object data 400 distinguish whether the completion of processing was carried out altogether (step S617) and are not yet completed, it performs return and the processing step after this to step S611. And if the PDL data 403 carry out the completion of processing altogether, it will be in return and the state waiting for a processing demand to step S601.

[0084] (Actuation of a server 102)

(1) **** of the user management section 309 of operation and drawing 7 show an example of User Information managed by the user management section 309 of a server 102. As shown in above-mentioned drawing 7 , the user management section 309 was matched with the password used at the time of authentication processing, and has managed each user (registered user) by unique ID (user ID).

[0085] In addition, User Information as shown in above-mentioned drawing 7 is made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and].

[0086] Drawing 8 shows actuation of the user management section 309 of a server 102. For example, the Maine controller 304 of a server 102 reads and performs the processing program according to the flow chart of above-mentioned drawing 8 memorized beforehand to the storage means of the primary storage section 302 or secondary-storage section 303 grade. Thereby, the user management section 309 of a server 102 operates as follows.

[0087] The user management section 309 will be in the state waiting for a processing

demand immediately after this processing activation initiation (step S801). It does not change from this condition until a certain processing demand is outputted to the user management section 309.

[0088] If a certain processing demand is outputted to the user management section 309, the user management section 309 will distinguish whether the processing demand concerned is an authentication processing demand (step S802). In being an authentication processing demand as a result of this distinction, it progresses to processing from step S803, and when that is not right, it progresses to processing from step S809 mentioned later.

[0089] In the processing from step S803, the user management section 309 distinguishes whether the entry of the user for authentication exists with reference to User Information shown in above-mentioned drawing 7 (step S803) (snub S804).

[0090] In step S803, when the entry of the user for authentication does not exist, the user management section 309 will be in return and the state waiting for a processing demand to step S801 again after activation of authentication failure processing (step S807). On the other hand, when the entry of the user for authentication exists, the user management section 309 progresses to processing from the following step S805.

[0091] In the processing from step S805, the user management section 309 requires a password input from authentication processing demand origin (here printer 103 (X)) (step S805). By this, the password input to the client machine 104 (X) will be required through a printer 103 (X).

[0092] The user management section 309 attests the user for authentication (processing client) with the password (password entered by the user with the client machine 104 (X)) returned from authentication processing demand origin (step S806). For example, the user management section 309 distinguishes whether the password entered by the user and the password contained in the entry of the user for [which was obtained at step S803] authentication are in agreement.

[0093] In step S806, when each password is in agreement, the user management section 309 notifies an authentication processing success to a client 104 (X) through a printer 103 (X) as that in which authentication succeeded (step S808). Then, it will be in return and the state waiting for a processing demand to step S801 again. On the other hand, when each password is not in agreement, the user management section 309 will be in return and the state waiting for a processing demand to step S801 again after activation of authentication failure processing (step S807) as what failed in authentication.

[0094] In step S802 mentioned above, when the processing demand outputted to the user management section 309 is not an authentication processing demand, the user management section 309 distinguishes whether the processing demand concerned is a demand of user management processing (step S809).

[0095] In step S809, when it is the demand of user management processing, the user to whom the user management section 309 published the demand concerned distinguishes whether it has the authority to perform user management (step S810).

[0096] In step S810, edit processing of the entry of User Information when it had the authority to perform user management, as shown in above-mentioned drawing 7 is performed (step S811), and the user management section 309 will be in return and the

state waiting for a processing demand to step S801 again, when the processing terminates normally. On the other hand, when there is no authority to perform user management, the user management section 309 will be in return and the state waiting for a processing demand to step S801 again, after publishing an error notification to the demand origin of user management processing (step S812).

[0097] In step S809, when it is not the demand of user management processing, after the user management section 309 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S813), it will be in return and the state waiting for a processing demand to step S801 again.

[0098] (2) **** of the counter Management Department 308 of operation and drawing 9 show an example of the counter information managed as resemble the counter Management Department 308 of a server 102. As shown in above-mentioned drawing 9 , the counter Management Department 308 matched with each user's (registered user) ID (user ID), and has managed the frequency of the resource (resource) which the user used as a counter value.

[0099] In addition, counter information as shown in above-mentioned drawing 9 is made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and].

[0100] Drawing 10 shows actuation of the counter Management Department 308 of a server 102. For example, the Maine controller 304 of a server 102 reads and performs the processing program according to the flow chart of above-mentioned drawing 10 memorized beforehand to the storage means of the primary storage section 302 or secondary-storage section 303 grade. Thereby, the counter Management Department 308 of a server 102 operates as follows.

[0101] The counter Management Department 308 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1001). It does not change from this condition until a certain processing demand is outputted to the counter Management Department 308.

[0102] If a certain processing demand is outputted to the counter Management Department 308, the counter Management Department 308 will distinguish whether the processing demand concerned is a count-up demand of a counter value (step S1002). In being a count-up demand as a result of this distinction, it progresses to processing from step S1003, and when that is not right, it progresses to processing from step S1005 mentioned later.

[0103] In the processing from step S1003, the counter Management Department 308 updates the counter value of the applicable user of the counter information shown in above-mentioned drawing 9 (step S1003). Moreover, the counter Management Department 308 updates an applicable user's credit residue managed by the credit management 307 according to renewal of the above-mentioned counter value (step S1004). Then, the counter Management Department 308 will be in return and the state waiting for a processing demand to step S1001 again.

[0104] In step S1002, when the processing required of the counter Management Department 308 is not a count-up processing demand, the counter Management Department 308 distinguishes whether the processing demand concerned is an inquiry

processing demand of a counter value (step S1005). In being an inquiry processing demand of a counter value as a result of this distinction, it progresses to processing from step S1006, and when that is not right, it progresses to processing from step S1007 mentioned later.

[0105] In the processing from step S1006, the counter Management Department 308 transmits the counter value of the applicable user of the counter information shown in above-mentioned drawing 9 to a demand place (step S1006). Then, the counter Management Department 308 will be in return and the state waiting for a processing demand to step S1001 again.

[0106] In step S1005, when the processing required of the counter Management Department 308 is not the inquiry processing demand of counted value, the counter Management Department 308 distinguishes whether the processing demand concerned is a processing demand by management operation (step S1007). Management operation here points out the editing task of the counter information shown in above-mentioned drawing 9 by the user (manager) with special authority. In being the processing demand by management operation as a result of this distinction, it progresses to processing from step S1008, and when that is not right, it progresses to processing from step S1011 mentioned later.

[0107] In the processing from step S1008, the counter Management Department 308 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1008). When the counter Management Department 308 performs the editing task of the counter information on above-mentioned drawing 9 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1009), and it ends normally [the activity concerned], it will be in return and the state waiting for a processing demand to step S1001 again. On the other hand, when it is not a user with an administration right, the counter Management Department 308 notifies the user concerned of an error (step S1010), and will be in return and the state waiting for a processing demand to step S1001 as it is.

[0108] In step S1007, when the processing required of the counter Management Department 308 is not the processing demand by management operation, either, after the counter Management Department 308 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1011), it will be in return and the state waiting for a processing demand to step S1001 again.

[0109] (3) **** of the credit Management Department 307 of operation and drawing 11 show an example of the credit information managed as resemble the credit Management Department 307 of a server 102. As shown in above-mentioned drawing 11 , the credit Management Department 307 matched with each user's (registered user) ID (user ID), and has managed the residue of a user's credit.

[0110] In addition, credit information as shown in above-mentioned drawing 11 is made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and].

[0111] Drawing 12 shows actuation of the credit Management Department 307 of a server 102. For example, the Maine controller 304 of a server 102 reads and performs the

processing program according to the flow chart of above-mentioned drawing 12 memorized beforehand to the storage means of the primary storage section 302 or secondary-storage section 303 grade. Thereby, the credit Management Department 307 of a server 102 operates as follows.

[0112] The credit Management Department 307 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1201). It does not change from this condition until a certain processing demand is outputted to the credit Management Department 307.

[0113] If a certain processing demand is outputted to the credit Management Department 307, the credit Management Department 307 will distinguish whether the processing demand concerned is an update process demand of a credit residue (step S1202). In being the update process demand of a credit residue as a result of this distinction, it progresses to processing from step S1203, and when that is not right, it progresses to processing from step S1204 mentioned later.

[0114] In the processing from step S1203, the credit Management Department 307 updates the credit residue of the applicable user of the credit information shown in above-mentioned drawing 11 (step S1203). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0115] In step S1202, when the processing required of the credit Management Department 307 is not the updating demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an inquiry processing demand of a credit residue (step S1204). In being the inquiry processing demand of a credit residue as a result of this distinction, it progresses to processing from step S1205, and when that is not right, it progresses to processing from step S1206 mentioned later.

[0116] In the processing from step S1205, the credit Management Department 307 transmits the credit residue of the applicable user of the credit information shown in above-mentioned drawing 11 to a demand place (step S1205). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0117] In step S1204, when the processing required of the credit Management Department 307 is not the inquiry processing demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is a processing demand by management operation (step S1206). Management operation here points out the editing task of the credit information shown in above-mentioned drawing 11 by the user (manager) with special authority. In being the processing demand by management operation as a result of this distinction, it progresses to processing from step S1207, and when that is not right, it progresses to processing from step S1210 mentioned later.

[0118] In the processing from step S1207, the credit Management Department 307 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1207). When the credit Management Department 307 performs the editing task of the credit information on above-mentioned drawing 11 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1208), and it ends normally [the activity concerned], it will be in return and the state waiting for a

processing demand to step S1201 again. On the other hand, when it is not a user with an administration right, the credit Management Department 307 notifies the user concerned of an error (step S1209), and will be in return and the state waiting for a processing demand to step S1201 as it is.

[0119] In step S1206, when the processing required of the credit Management Department 307 is not the processing demand by management operation, either, after the credit Management Department 307 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1210), it will be in return and the state waiting for a processing demand to step S1201 again.

[0120] In addition, in the gestalt of this operation, various devices, such as a general-purpose computer and special equipment designed in order to offer specific service, are applicable as client device 104(1) -104(3), for example. Here, with the configuration of accounting whose implementation gestalt of the device concerned is the object of this invention, intrinsically, since it is unrelated, when the device concerned takes what kind of gestalt, this invention is applied.

[0121] Moreover, the server 102 in the gestalt of this operation is not an indispensable configuration. That is, in printer 103(1) -103(3), if a gestalt which realizes directly a means (accounting management tool) to manage the means (user management means) and accounting which manage a user is taken, it is only printer 103(1) -103(3), and a function required for this invention can be realized. However, a mounting gestalt which carries out a user management means and an accounting management tool according to an individual by two or more printer 103(1) -103(3) is not efficient in respect of management like the gestalt of this operation. Therefore, the implementation gestalt which offers the configuration of accounting by this invention as the this system 100 whole is taken by giving a user management means and an accounting management tool unitary, and giving the access means to the user management means and accounting management tool of a server 102 to printer 103(1) -103(3) to a server 102, like the gestalt of this operation. It is only an example of the gestalt of implementation of the configuration of accounting which, as for the gestalt of such this implementation, this invention mentions with a natural thing. Therefore, in other than the gestalt of this operation (for example, the case of a gestalt which gives a direct user management means and an accounting management tool to printer 103(1) -103(3) as mentioned above), this invention is applied.

[0122] Moreover, with the gestalt of this operation, reference is not made especially about the detailed configuration of the network 101 which connects printer 103(1) -103(3) client device 104(1) -104(3) and a server 102. The reason is that this does not have relation with the essential configuration of accounting which is the object of this invention. Therefore, this invention is applied when what kind of gestalt is taken about the physical implementation approach of a network 101.

[0123] moreover -- the above -- drawing 1 -- **** -- being single -- a network -- 101 -- plurality -- a device -- 102 -- 103 -- (-- one --) - 103 -- (-- three --) -- 104 -- (-- one --) - 104 -- (-- three --) -- connecting -- having had -- a configuration -- having illustrated -- although -- this -- restricting -- having -- things -- there is nothing -- for example, -- the Internet -- etc. -- like -- plurality -- a network -- minding -- plurality -- a device -- 102 -- 103 -- (-- one --) - 103 -- (-- three --) -- 104 -- (-- one --) - 104 -- (-- three --) -- connecting -- having -- a

configuration -- ** -- carrying out -- you may make . This invention is applied also in this case.

[0124] Moreover, in the gestalt of this operation, it may consist of a certain gestalten that printer 103(1) -103(3) offers the function of client device 104(1) -104(3) directly etc. so that a direct user can input the data for printing to printer 103(1) -103(3). This invention is applied also in this case.

[0125] With the gestalt of <gestalt of the 2nd operation> book operation, actuation of a printer 103 (X) is considered as actuation according to the flow chart of drawing 13 in the network system 100 shown in above-mentioned drawing 1 .

[0126] In addition, in the flow chart shown in above-mentioned drawing 13 , the same sign is given to the step which carries out processing activation like the flow chart shown in above-mentioned drawing 6 , and the detailed explanation is omitted.

[0127] For example, the Maine controller 213 of a printer 103 (X) reads and performs the processing program according to the flow chart of above-mentioned drawing 13 memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade. Thereby, a printer 103 (X) operates as follows.

[0128] The Maine controller 213 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S601). It does not change from it until a processing demand is outputted from this condition from which the configuration section (component) of each configuration sections 202-212 on a system bus 201.

[0129] If a processing demand is outputted from which the configuration section (component) of each configuration sections 202-212 on a system bus 201, the Maine controller 213 will distinguish whether the processing demand concerned is data reception by the network adaptor 209 and the protocol analysis section 208 (step S602).

[0130] In step S602, ****** which was data reception by the network adaptor 209 and the protocol analysis section 208, and it mean that a certain processing request from the client machine 104 (X) was made. Therefore, it progresses to processing from step S604 mentioned later in this case. On the other hand, since processings (for example, processing which followed directions from the control unit 202) within a printer 103 (X) are meant when it is not data reception by the network adaptor 209 and the protocol analysis section 208, after performing the processing concerned (step S603), it will be in return and the state waiting for a processing demand to step S601 again.

[0131] In addition, in step S603, although there are various processings as processing performed actually, since it is the processing which does not have direct relation to the effectiveness of this invention, the detailed explanation is omitted.

[0132] In the processing from step S604, the Maine controller 213 performs authentication processing of a user (step S604). User authentication processing here includes the processing for confirming whether the user (processing client) who threw in the data for printing has the activation authority of processing in the client machine 104 (X). Specifically, the Maine controller 213 transmits User Information from the client machine 104 (X) to a server 102 through the user management section 210. A server 102 checks the account information of the user who has managed by user management 309 by above-mentioned User Information from a printer 103 (X), and returns the status based on the check result.

[0133] The Maine controller 213 distinguishes whether authentication processing was successful by the above-mentioned status returned from the server 102 (step S605).

[0134] In step S605, when authentication processing is successful, it progresses to processing from step S607 mentioned later. On the other hand, when authentication processing goes wrong, advice of authentication failure is published to the client machine 104 (X) which published the processing demand (step S606), and it will be in return and the state waiting for a processing demand to step S601 again.

[0135] In the processing from step S607, the Maine controller 213 performs reception of the data from the client machine 104 (X) (step S607). A network adaptor 209 and the protocol analysis section 208 receive the data transmitted from the client machine 104 (X), and specifically, the Maine controller 213 carries out directions of operation to each of these configuration sections so that a primary storage 204 or a secondary storage 205 may memorize the received data concerned.

[0136] The Maine controller 213 carries out directions of operation to the print data analysis section 202 so that the expiration date information 402 on the data concerned and the accounting candidate information 401 grade which are contained in the data concerned may be separated from the received data (processing-object data 400) memorized to the primary storage 204 or the secondary storage 205 (step S608).

[0137] In addition, about the content of concrete processing of the print data analysis section 203 and its procedure in step S608, depending on the DS of processing-object data, and encoding/decoding method of the data concerned, since it is not the essence of this invention, the detailed explanation is omitted. Moreover, although various processing patterns can be considered when performing the processing concerned after finishing receiving all the packets that received and that perform the processing concerned for each packet of every, or constitute data also about the data reception of step S607 In step S608, if it has guaranteed that required information can be eventually started from received data, any processing patterns can be applied and this invention will be applied in this limitation.

[0138] The Maine controller 213 distinguishes whether the expiration date of the processing-object data 400 (specifically PDL data 403) has run out using the expiration date information 402 acquired at step S608 (step S609). For example, the Maine controller 213 compares the date and time of day which are shown using the expiration date information 402 with the current date and the time of day which are shown by the internal timer of a printer 103 (X), and it distinguishes whether a current date and time of day (timing of a processing request) are over the date and time of day which are shown using the expiration date information 402.

[0139] In step S609, when the expiration date of the processing-object data 400 has run out, expiration is notified to the client machine 104 (X) (step S610), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the expiration date of the processing-object data 400 has not run out, processing from the following step S621 is performed. The processing from this step S621 is the processing by which it is characterized [of the gestalt of this operation].

[0140] In the processing from step S621, the Maine controller 213 checks an accounting candidate's credit (step S621). For example, the Maine controller 213 supplies the accounting candidate information 401 acquired at step S608 to the credit Management

Department 307 of a server 102 through the user management section 210, and requests the check of whether the credit of the accounting candidate concerned remains in processing of the processing-object data 400 by the complement.

[0141] When an accounting candidate's credit exists as a result of distinction of step S621, it progresses to processing from step S622, and when an accounting candidate's credit does not exist, it progresses to processing from step S626 mentioned later.

[0142] In the processing from step S622, the Maine controller 213 is supplying the PDL data 403 acquired at step S608 to the PDL interpretation section 212, and is developed to an image image (step S622).

[0143] The Maine controller 213 performs processing of the processing-object data 400 (step S623). With the gestalt of this operation, the processing concerned is equivalent to printing processing. For this reason, for example, the Maine controller 213 is supplying the image image data acquired at step S622 to the print engine 206 through the engine controller 207, and performs printing processing to the image image data concerned.

[0144] The Maine controller 213 updates the value of an accounting candidate's counter by the counter Management Department 308 of a server 102 through the accounting Management Department 211 (step 624). In connection with this, the residue of an accounting candidate's credit managed at the credit Management Department 307 of a server 102 is also updated.

[0145] The Maine controller 213 is the processing so far, and when the PDL data 403 in the processing-object data 400 distinguish whether the completion of processing was carried out altogether (step S625) and are not yet completed, it performs return and the processing step after this to step S621. And if the PDL data 403 carry out the completion of processing altogether, it will be in return and the state waiting for a processing demand to step S601.

[0146] In step S621, when an accounting candidate's credit did not exist and it is distinguished, the Maine controller 213 distinguishes whether an accounting candidate is the processing client (user of the client machine 104 (X)) itself (step S626). When an accounting candidate is a processing client as a result of this distinction, it progresses to processing from step S627, and when that is not right, it progresses to processing from step S628 mentioned later.

[0147] In the processing from step S627, an accounting candidate is the processing client itself, and since there is no room to change an accounting candidate and continue processing, the Maine controller 213 interrupts processing activation, notifies a purport without a credit residue to the client machine 104 (X) (as opposed to a processing client) (step S627), and will be in return and the state waiting for a processing demand to step S601.

[0148] In step S626, when an accounting candidate was not the processing client itself and it is distinguished, the Maine controller 213 asks whether continue processing by changing an accounting candidate into oneself (processing client) to the user (processing client) of the client machine 104 (X) (step S628). When not changing an accounting candidate as a result of this inquiry, the Maine controller 213 interrupts processing activation, notifies a purport without a credit residue to the client machine 104 (X) (as opposed to a processing client) (step S627), and will be in return and the state waiting for a processing demand to step S601. On the other hand, when not changing an accounting candidate, the Maine

controller 213 changes an accounting candidate into a processing client (step S629), and performs processing from step S621 again.

[0149] With the gestalt of <gestalt of the 3rd operation> book operation, actuation of a printer 103 (X) is considered as actuation according to the flow chart of drawing 14 in the network system 100 shown in above-mentioned drawing 1 . In addition, in the flow chart shown in above-mentioned drawing 14 , the same sign is given to the step which carries out processing activation like the flow chart shown in above-mentioned drawing 6 , and the detailed explanation is omitted.

[0150] Moreover, with the gestalt of this operation, it considers as information as shows the detailed information on the accounting candidate information 401 shown in above-mentioned drawing 4 to drawing 15 . For the accounting candidate information 401 on the drawing 15 concerned, the user ID of the processing client who permits processing is enumerated. For this reason, in the following explanation, the accounting candidate information 401 on above-mentioned drawing 15 is called processing client information 401-(a). In addition, processing client information 401-(a) shown in above-mentioned drawing 15 is made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and].

[0151] Then, for example, the Maine controller 213 of a printer 103 (X) reads and performs the processing program according to the flow chart of above-mentioned drawing 14 memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade. Thereby, a printer 103 (X) operates as follows.

[0152] The Maine controller 213 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S601). It does not change from it until a processing demand is outputted from this condition from which the configuration section (component) of each configuration sections 202-212 on a system bus 201.

[0153] If a processing demand is outputted from which the configuration section (component) of each configuration sections 202-212 on a system bus 201, the Maine controller 213 will distinguish whether the processing demand concerned is data reception by the network adaptor 209 and the protocol analysis section 208 (step S602).

[0154] In step S602, ****** which was data reception by the network adaptor 209 and the protocol analysis section 208, and it mean that a certain processing request from the client machine 104 (X) was made. Therefore, it progresses to processing from step S604 mentioned later in this case. On the other hand, since processings (for example, processing which followed directions from the control unit 202) within a printer 103 (X) are meant when it is not data reception by the network adaptor 209 and the protocol analysis section 208, after performing the processing concerned (step S603), it will be in return and the state waiting for a processing demand to step S601 again.

[0155] In addition, in step S603, although there are various processings as processing performed actually, since it is the processing which does not have direct relation to the effectiveness of this invention, the detailed explanation is omitted.

[0156] In the processing from step S604, the Maine controller 213 performs authentication processing of a user (step S604). User authentication processing here includes the processing for confirming whether the user (processing client) who threw in the data for printing has the activation authority of processing in the client machine 104 (X).

Specifically, the Maine controller 213 transmits User Information from the client machine 104 (X) to a server 102 through the user management section 210. A server 102 checks the account information of the user who has managed by user management 309 by above-mentioned User Information from a printer 103 (X), and returns the status based on the check result.

[0157] The Maine controller 213 distinguishes whether authentication processing was successful by the above-mentioned status returned from the server 102 (step S605).

[0158] In step S605, when authentication processing is successful, it progresses to processing from step S607 mentioned later. On the other hand, when authentication processing goes wrong, the Maine controller 213 publishes advice of authentication failure to the client machine 104 (X) which published the processing demand (step S606), and will be in return and the state waiting for a processing demand to step S601 again.

[0159] In the processing from step S607, the Maine controller 213 performs reception of the data from the client machine 104 (X) (step S607). A network adaptor 209 and the protocol analysis section 208 receive the data transmitted from the client machine 104 (X), and specifically, the Maine controller 213 carries out directions of operation to each of these configuration sections so that a primary storage 204 or a secondary storage 205 may memorize the received data concerned.

[0160] The Maine controller 213 carries out directions of operation to the print data analysis section 202 so that the expiration date information 402 on the data concerned contained in the data concerned, processing client information 401-(a), etc. may be separated from the received data (processing-object data 400) memorized to the primary storage 204 or the secondary storage 205 (step S608).

[0161] In addition, about the content of concrete processing of the print data analysis section 203 and its procedure in step S608, depending on the DS of processing-object data, and encoding/decoding method of the data concerned, since it is not the essence of this invention, the detailed explanation is omitted. Moreover, although various processing patterns can be considered when performing the processing concerned after finishing receiving all the packets that received and that perform the processing concerned for each packet of every, or constitute data also about the data reception of step S607 In step S608, if it has guaranteed that required information can be eventually started from received data, any processing patterns can be applied and this invention will be applied in this limitation.

[0162] The Maine controller 213 distinguishes whether a processing client's (user of the client machine 104 (X)) user ID is contained in the information with reference to processing client information 401-(a) acquired at step S608 (step S631). namely, processing client information 401- which the user ID contained in User Information from the client machine 104 (X) acquired at step S604 which mentioned the Maine controller 213 above acquired at step S608 -- it distinguishes whether it is set up in (a).

[0163] the result of distinction of step S631 -- a processing client's user ID -- processing client information 401- the case where it is not set to (a) -- the processing from step S632 -- progressing -- a processing client's user ID -- processing client information 401- when set to (a), it progresses to processing from step S633 mentioned later.

[0164] In the processing from step S632, the Maine controller 213 interrupts processing, notifies that to the client machine 104 (X) which published the processing demand (step

S632), and will be in return and the state waiting for a processing demand to step S601 again.

[0165] In step S631, when a processing client's user ID was set to processing client information 401·(a) and it is distinguished, the Maine controller 213 distinguishes whether the expiration date of the processing-object data 400 (specifically PDL data 403) has run out using the expiration date information 402 acquired at step S608 (step S633). For example, the Maine controller 213 compares the date and time of day which are shown using the expiration date information 402 with the current date and the time of day which are shown by the internal timer of a printer 103 (X), and it distinguishes whether a current date and time of day (timing of a processing request) are over the date and time of day which are shown using the expiration date information 402.

[0166] In step S633, when the expiration date of the processing-object data 400 has run out, expiration is notified to the client machine 104 (X) (step S634), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the expiration date of the processing-object data 400 has not run out, processing from the following step S635 is performed.

[0167] In the processing from step S635, the Maine controller 213 checks an accounting candidate's credit (step S635). For example, the Maine controller 213 supplies the information of the processing client who checked at step S631 to the credit Management Department 307 of a server 102 through the user management section 210, and requests the check of whether the credit of the processing client concerned remains in processing of the processing-object data 400 by the complement.

[0168] When a processing client's credit exists as a result of distinction of step S635, it progresses to processing from step S637, and when a processing client's credit does not exist, it progresses to processing from step S636 mentioned later.

[0169] In the processing from step S637, the Maine controller 213 is supplying the PDL data 403 acquired at step S608 to the PDL interpretation section 212, and is developed to an image image (step S637).

[0170] The Maine controller 213 performs processing of the processing-object data 400 (step S638). With the gestalt of this operation, the processing concerned is equivalent to printing processing. For this reason, for example, the Maine controller 213 is supplying the image image data acquired at step S637 to the print engine 206 through the engine controller 207, and performs printing processing to the image image data concerned.

[0171] The Maine controller 213 updates the value of an accounting candidate's counter by the counter Management Department 308 of a server 102 through the accounting Management Department 211 (step 639). In connection with this, the residue of an accounting candidate's credit managed at the credit Management Department 307 of a server 102 is also updated.

[0172] The Maine controller 213 is the processing so far, and when the PDL data 403 in the processing-object data 400 distinguish whether the completion of processing was carried out altogether (step S640) and are not yet completed, it performs return and the processing step after this to step S635. And if the PDL data 403 carry out the completion of processing altogether, it will be in return and the state waiting for a processing demand to step S601.

[0173] In step S635, when a processing client's credit did not exist and it is distinguished,

the Maine controller 213 interrupts processing activation, notifies a purport without a credit residue to the client machine 104 (X) (as opposed to a processing client) (step S636), and will be in return and the state waiting for a processing demand to step S601.

[0174] With the gestalt of <gestalt of the 4th operation> book operation, the configuration and actuation of a server 102 and a printer 103 (X) are carried out as follows in the network system 100 shown in above-mentioned drawing 1 .

[0175] (Configuration of a server 102) The server 102 in the gestalt of this operation is taken as the configuration further equipped with the data ID Management Department 311 to the configuration shown in above-mentioned drawing 3 , as shown in drawing 16 . The data ID Management Department 311 is the configuration section for a server 102 to identify and manage processing-object data. For this reason, ID (data ID) for identifying the data concerned is added to processing-object data, and the data ID Management Department 311 matched with Data ID, and has managed the count which can process the data concerned.

[0176] Drawing 17 shows an example of the management information in the data ID Management Department 311. As shown in above-mentioned drawing 17 , while processing-object data are managed with the unique data ID, it is matched with the data ID concerned and the number of ** of the counts which can be processed is managed at the data ID Management Department 311. For example, it is shown by above-mentioned drawing 17 that it is possible to process the processing-object data shown by "D_ID00034" 121 more times.

[0177] The data ID management information of above-mentioned drawing 17 is made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and]. Moreover, in order to manage the data ID management information of above-mentioned drawing 17 at the data ID Management Department 311, Data ID and the corresponding count which can be processed of the processing-object data concerned are beforehand registered into a processing-object data generate time to the data ID Management Department 310 by the approach of arbitration. It is guaranteed at this time that Data ID are unique ID.

[0178] In addition, since the detail about the implementation approach of registration of the data ID management information of above-mentioned drawing 17 is not essential in this invention, the detailed explanation is omitted. Therefore, this invention is applied as long as the configuration of the claim of this invention is filled, when what kind of means is taken about the above-mentioned implementation approach.

[0179] (Configuration of a printer 103 (X)) The printer 103 in the gestalt of this operation (X) is considered as the configuration further equipped with the data ID Management Department 214 to the configuration shown in above-mentioned drawing 2 , as shown in drawing 18 . The data ID Management Department 214 is made like the user management section 210 or the accounting Management Department 211 as [offer / the access means against the data ID Management Department 311 of a server 102].

[0180] In addition, you may make it give [as opposed to / with a natural thing / the data ID Management Department 214] directly the function which the data ID Management Department 311 of a server 102 has.

[0181] Moreover, with the gestalt of this operation, processing-object data 400-(a) as shown

in drawing 19 is used instead of the processing-object data 400 (data for printing) shown in above-mentioned drawing 4 . In addition to the accounting candidate information 401, the expiration date information 402, and the PDL data 403, processing-object data 400-(a) contains data ID 404 to the processing-object data 400 (data for printing) of above-mentioned drawing 4 , as shown in above-mentioned drawing 19 . It is data used in order to identify processing-object data 400-(a) uniquely, as mentioned above in data ID 404.

[0182] In addition, in processing-object data 400-(a) in the gestalt of this operation, two or more the implementation approaches are considered about in what kind of format the expiration date information 402, the accounting candidate information 401, and the information on data ID404 grade are actually stored in processing-object data 400-(a). However, this invention will be applied, if the expiration date information 402, the accounting candidate information 401, and the information on data ID404 grade are constituted without being dependent on the format format at this time so that it can add and dissociate to the PDL data 403 according to the format of arbitration. Moreover, in the gestalt of this operation, each information on the expiration date information 402 stored in processing-object data 400-(a), the accounting candidate information 401, the PDL data 403, and data ID 404 supposes that it is disengageable only by the print data analysis section 203 shown in above-mentioned drawing 2 . The expiration date information 402, the accounting candidate information 401, and the information on data ID404 grade are very important data related to accounting, and the reason is for preventing the alteration and improper use by the 3rd person. For this reason, the expiration date information 402, the accounting candidate information 401, and the information on data ID404 grade are generated by the special approach from the field of security, and are added to the PDL data 403 by the special approach, and are made as [guarantee / by the still more nearly special approach / that it is disengageable only in the print data analysis section 203]. however, the special approach here itself is an approach which is not essential and satisfies the above-mentioned requirements for this invention -- if it becomes, even if it will be what kind of approach -- application -- possible -- the limitation -- this invention is applied.

[0183] (Actuation of a printer 103 (X)) Drawing 20 shows actuation of the printer 103 in the gestalt of this operation (X). For example, the Maine controller 213 of a printer 103 (X) reads and performs the processing program according to the flow chart of above-mentioned drawing 20 memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade. Thereby, a printer 103 (X) operates as follows.

[0184] In addition, in the flow chart shown in above-mentioned drawing 20 , the same sign is given to the step which carries out processing activation like the flow chart shown in above-mentioned drawing 6 , and the detailed explanation is omitted.

[0185] The Maine controller 213 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S601). It does not change from it until a processing demand is outputted from this condition from which the configuration section (component) of each configuration sections 202-212 on a system bus 201.

[0186] If a processing demand is outputted from which the configuration section (component) of each configuration sections 202-212 on a system bus 201, the Maine controller 213 will distinguish whether the processing demand concerned is data reception

by the network adaptor 209 and the protocol analysis section 208 (step S602).

[0187] In step S602, ****** which was data reception by the network adaptor 209 and the protocol analysis section 208, and it mean that a certain processing request from the client machine 104 (X) was made. Therefore, it progresses to processing from step S604 mentioned later in this case. On the other hand, since processings (for example, processing which followed directions from the control unit 202) within a printer 103 (X) are meant when it is not data reception by the network adaptor 209 and the protocol analysis section 208, after performing the processing concerned (step S603), it will be in return and the state waiting for a processing demand to step S601 again.

[0188] In addition, in step S603, although there are various processings as processing performed actually, since it is the processing which does not have direct relation to the effectiveness of this invention, the detailed explanation is omitted.

[0189] In the processing from step S604, the Maine controller 213 performs authentication processing of a user (step S604). User authentication processing here includes the processing for confirming whether the user (processing client) who threw in the data for printing has the activation authority of processing in the client machine 104 (X). Specifically, the Maine controller 213 transmits User Information from the client machine 104 (X) to a server 102 through the user management section 210. A server 102 checks the account information of the user who has managed by user management 309 by above-mentioned User Information from a printer 103 (X), and returns the status based on the check result.

[0190] The Maine controller 213 distinguishes whether authentication processing was successful by the above-mentioned status returned from the server 102 (step S605).

[0191] In step S605, when authentication processing is successful, it progresses to processing from step S607 mentioned later. On the other hand, when authentication processing goes wrong, the Maine controller 213 publishes advice of authentication failure to the client machine 104 (X) which published the processing demand (step S606), and will be in return and the state waiting for a processing demand to step S601 again.

[0192] In the processing from step S607, the Maine controller 213 performs reception of the data from the client machine 104 (X) (step S607). A network adaptor 209 and the protocol analysis section 208 receive the data transmitted from the client machine 104 (X), and specifically, the Maine controller 213 carries out directions of operation to each of these configuration sections so that a primary storage 204 or a secondary storage 205 may memorize the received data concerned.

[0193] The Maine controller 213 carries out directions of operation to the print data analysis section 202 so that the expiration date information 402 on the data concerned contained in the data concerned, the accounting candidate information 401, and data ID404 grade may be separated from the received data (processing-object data 400-(a)) memorized to the primary storage 204 or the secondary storage 205 (step S608').

[0194] In addition, about the content of concrete processing of the print data analysis section 203 and its procedure in step S608', depending on the DS of processing-object data, and encoding/decoding method of the data concerned, since it is not the essence of this invention, the detailed explanation is omitted. Moreover, although various processing patterns can be considered when performing the processing concerned after finishing

receiving all the packets that received and that perform the processing concerned for each packet of every, or constitute data also about the data reception of step S607 In step S608', if it has guaranteed that required information can be eventually started from received data, any processing patterns can be applied and this invention will be applied in this limitation.

[0195] The Maine controller 213 distinguishes whether the expiration date of PDL data 403) has run out on a processing-object data 400-(a) (concrete target using the expiration date information 402 acquired in step S608' (step S609). For example, the Maine controller 213 compares the date and time of day which are shown using the expiration date information 402 with the current date and the time of day which are shown by the internal timer of a printer 103 (X), and it distinguishes whether a current date and time of day (timing of a processing request) are over the date and time of day which are shown using the expiration date information 402.

[0196] In step S609, when the expiration date of processing-object data 400-(a) has run out, expiration is notified to the client machine 104 (X) (step S610), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the expiration date of processing-object data 400-(a) has not run out, processing from the following step S651 is performed.

[0197] In the processing from step S651, the Maine controller 213 distinguishes whether the count of processing-object data 400-(a) which can be processed yet remains with the data ID 404 acquired in step S608'. The Maine controller 213 is supplying the data ID 404 acquired in step S608' to the data ID Management Department 311 of a server 102 through the data ID Management Department 214, and, specifically, the check of whether the count of the processing-object data shown with the data ID 404 concerned which can be processed remains is requested (step S651).

[0198] When the count of the processing-object data shown with data ID 404 which can be processed does not remain as a result of the check of step S651, it progresses to processing from step S652 (when it is the count over of effective), and when the count of the processing-object data shown with data ID 404 which can be processed remains, it progresses to processing from step S653 mentioned later (when it is not the count over of effective).

[0199] In the processing from step S652, the Maine controller 213 notifies the purport in which the count of processing-object data which can be processed does not remain to the client machine 104 (X) (step S652), and will be in return and the state waiting for a processing demand to step S601 again.

[0200] When the count of the processing-object data shown with data ID 404 which can be processed remains by the check of step S651, the Maine controller 213 checks an accounting candidate's credit (step S653). For example, the Maine controller 213 supplies the accounting candidate information 401 acquired in step S608' to the credit Management Department 307 of a server 102 through the user management section 210, and requests the check of whether an accounting candidate's credit shown using the accounting candidate information 401 remains in processing of processing-object data 400-(a) by the complement.

[0201] When an accounting candidate's credit does not exist as a result of distinction of step S653, it progresses to processing from step S654, and when an accounting candidate's

credit exists, it progresses to processing from step S655 mentioned later.

[0202] In the processing from step S654, the Maine controller 213 interrupts processing activation, notifies a purport without a credit residue to the client machine 104 (X) (step S654), and will be in return and the state waiting for a processing demand to step S601.

[0203] In step S653, when an accounting candidate's credit existed and it is distinguished, the Maine controller 213 is supplying the PDL data 403 acquired in step S608' to the PDL interpretation section 212, and is developed to an image image (step S655).

[0204] The Maine controller 213 performs processing of processing-object data 400-(a) (step S656). With the gestalt of this operation, the processing concerned is equivalent to printing processing. For this reason, for example, the Maine controller 213 is supplying the image image data acquired at step S655 to the print engine 206 through the engine controller 207, and performs printing processing to the image image data concerned.

[0205] The Maine controller 213 updates the value of an accounting candidate's counter by the counter Management Department 308 of a server 102 through the accounting Management Department 211 (step 657). In connection with this, the residue of an accounting candidate's credit managed at the credit Management Department 307 of a server 102 is also updated.

[0206] The Maine controller 213 is the processing so far, and when the PDL data 403 in processing-object data 400-(a) distinguish whether the completion of processing was carried out altogether (step S658) and are not yet completed, it performs return and the processing step after this to step S653. And if the PDL data 403 carry out the completion of processing altogether, through the data ID Management Department 214, the Maine controller 213 requests the renewal concerned of the count of processing-object data 400-(a) which can be processed which carried out the completion of processing to the data ID Management Department 311 of a server 102 (step S659), and will be in return and the state waiting for a processing demand to step S601 at it.

[0207] (Actuation of a server 102) Drawing 21 shows actuation of the data ID Management Department 311 of a server 102. For example, the Maine controller 304 of a server 102 reads and performs the processing program according to the flow chart of above-mentioned drawing 21 memorized beforehand to the storage means of the primary storage section 302 or secondary-storage section 303 grade. Thereby, the data ID Management Department 311 of a server 102 operates as follows.

[0208] The data ID Management Department 311 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1301). It does not change from this condition until a certain processing demand is outputted to the data ID Management Department 311.

[0209] If a certain processing demand is outputted to the data ID Management Department 311, the data ID Management Department 311 will distinguish whether the processing demand concerned is an inquiry demand of the count which can be processed (step S1302). In being the inquiry demand of the count which can be processed as a result of this distinction, it progresses to processing from step S1303, and when that is not right, it progresses to processing from step S1304 mentioned later.

[0210] In the processing from step S1303, the data ID Management Department 311 returns the value of the count corresponding to ID of the processing-object data shown by

the inquiry demand of the count which can be processed out of the data ID management information shown in above-mentioned drawing 17 which can be remaining processed to the demand origin concerned (step S1303). Then, the data ID Management Department 311 will be in return and the state waiting for a processing demand to step S1301 again.

[0211] In step S1302, when the processing required of the data ID Management Department 311 is not the inquiry demand which is the count which can be processed, the data ID Management Department 311 distinguishes whether it is the modification processing demand whose processing demand concerned is the count which can be processed (step S1304). In being the modification processing demand of the count which can be processed as a result of this distinction, it progresses to processing from step S1305, and when that is not right, it progresses to processing from step S1306 mentioned later.

[0212] In the processing from step S1305, the data ID Management Department 311 changes the value of the count corresponding to ID of the processing-object data shown by the inquiry demand of the count which can be processed which can be remaining processed in the data ID management information shown in above-mentioned drawing 17 (step S1305). Then, the data ID Management Department 311 will be in return and the state waiting for a processing demand to step S1301 again.

[0213] In step S1304, when the processing required of the data ID Management Department 311 is not the modification processing demand which is the count which can be processed, the data ID Management Department 311 distinguishes whether it is the registration processing demand whose processing demands concerned are Data ID and the count which can be processed (step S1306). In being the registration processing demand of Data ID and the count which can be processed as a result of this distinction, it progresses to processing from step S1307, and when that is not right, it progresses to processing from step S1308 mentioned later.

[0214] In the processing from step S1307, the data ID Management Department 311 performs processing (creation processing of an entry) which the data ID of the processing-object data shown by the inquiry demand of the count which can be processed, and the count which can be processed register in the data ID management information shown in above-mentioned drawing 17 (step S1307). Then, the data ID Management Department 311 will be in return and the state waiting for a processing demand to step S1301 again.

[0215] In step S1306, when the processing required of the data ID Management Department 311 is not the registration processing demand which are Data ID and the count which can be processed, the data ID Management Department 311 distinguishes whether the demand concerned is a processing demand by management operation (step S1008). Management operation here points out the editing task of the data ID management information shown in above-mentioned drawing 17 by the user (manager) with special authority. In being the processing demand by management operation as a result of this distinction, it progresses to processing from step S1309, and when that is not right, it progresses to processing from step S1312 mentioned later.

[0216] In the processing from step S1309, the data ID Management Department 311 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1309). When the data ID

Management Department 311 performs the editing task of the data ID management information of above-mentioned drawing 17 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1310), and it ends normally [the activity concerned], it will be in return and the state waiting for a processing demand to step S1301 again. On the other hand, when it is not a user with an administration right, the data ID Management Department 311 notifies the user concerned of an error (step S1311), and will be in return and the state waiting for a processing demand to step S1301 as it is.

[0217] In step S1308, when the processing required of the data ID Management Department 311 is not the processing demand by management operation, either, after the data ID Management Department 311 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1312), it will be in return and the state waiting for a processing demand to step S1301 again.

[0218] With the gestalt of <gestalt of the 5th operation> book operation, actuation of a printer 103 (X) is considered as actuation according to the flow chart of drawing 22 in the network system 100 shown in above-mentioned drawing 1 . In addition, in the flow chart shown in above-mentioned drawing 22 , the same sign is given to the step which carries out processing activation like the flow chart shown in above-mentioned drawing 6 , and the detailed explanation is omitted.

[0219] Moreover, with the gestalt of this operation, it considers as information 401-(b) as shows the detailed information on the accounting candidate information 401 shown in above-mentioned drawing 4 to drawing 23 . In accounting candidate information 401-(b) of the drawing 23 concerned, it is made as [charge / it not only charges uniformly, but / by setting up an accounting candidate according to an individual the whole page in the data concerned / it / to processing-object data].

[0220] In addition, accounting candidate information 401-(b) shown in above-mentioned drawing 23 is made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and]. Moreover, the setting-out approach of the accounting candidate for every page can apply the setting-out approach of various patterns, without being restricted to the setting-out approach as shown in above-mentioned drawing 23 .

[0221] Then, for example, the Maine controller 213 of a printer 103 (X) reads and performs the processing program according to the flow chart of above-mentioned drawing 22 memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade. Thereby, a printer 103 (X) operates as follows.

[0222] The Maine controller 213 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S601). It does not change from it until a processing demand is outputted from this condition from which the configuration section (component) of each configuration sections 202-212 on a system bus 201.

[0223] If a processing demand is outputted from which the configuration section (component) of each configuration sections 202-212 on a system bus 201, the Maine controller 213 will distinguish whether the processing demand concerned is data reception by the network adaptor 209 and the protocol analysis section 208 (step S602).

[0224] In step S602, ****** which was data reception by the network adaptor 209 and the protocol analysis section 208, and it mean that a certain processing request from the client machine 104 (X) was made. Therefore, it progresses to processing from step S604 mentioned later in this case. On the other hand, since processings (for example, processing which followed directions from the control unit 202) within a printer 103 (X) are meant when it is not data reception by the network adaptor 209 and the protocol analysis section 208, after performing the processing concerned (step S603), it will be in return and the state waiting for a processing demand to step S601 again.

[0225] In addition, in step S603, although there are various processings as processing performed actually, since it is the processing which does not have direct relation to the effectiveness of this invention, the detailed explanation is omitted.

[0226] In the processing from step S604, the Maine controller 213 performs authentication processing of a user (step S604). User authentication processing here includes the processing for confirming whether the user (processing client) who threw in the data for printing has the activation authority of processing in the client machine 104 (X). Specifically, the Maine controller 213 transmits User Information from the client machine 104 (X) to a server 102 through the user management section 210. A server 102 checks the account information of the user who has managed by user management 309 by above-mentioned User Information from a printer 103 (X), and returns the status based on the check result.

[0227] The Maine controller 213 distinguishes whether authentication processing was successful by the above-mentioned status returned from the server 102 (step S605).

[0228] In step S605, when authentication processing is successful, it progresses to processing from step S607 mentioned later. On the other hand, when authentication processing goes wrong, advice of authentication failure is published to the client machine 104 (X) which published the processing demand (step S606), and it will be in return and the state waiting for a processing demand to step S601 again.

[0229] In the processing from step S607, the Maine controller 213 performs reception of the data from the client machine 104 (X) (step S607). A network adaptor 209 and the protocol analysis section 208 receive the data transmitted from the client machine 104 (X), and specifically, the Maine controller 213 carries out directions of operation to each of these configuration sections so that a primary storage 204 or a secondary storage 205 may memorize the received data concerned.

[0230] The Maine controller 213 carries out directions of operation to the print data analysis section 202 so that the expiration date information 402 on the data concerned contained in the data concerned, accounting candidate information 401-(b), etc. may be separated from the received data (processing-object data 400) memorized to the primary storage 204 or the secondary storage 205 (step S608).

[0231] In addition, about the content of concrete processing of the print data analysis section 203 and its procedure in step S608, depending on the DS of processing-object data, and encoding/decoding method of the data concerned, since it is not the essence of this invention, the detailed explanation is omitted. Moreover, although various processing patterns can be considered when performing the processing concerned after finishing receiving all the packets that received and that perform the processing concerned for each

packet of every, or constitute data also about the data reception of step S607 In step S608, if it has guaranteed that required information can be eventually started from received data, any processing patterns can be applied and this invention will be applied in this limitation.

[0232] The Maine controller 213 using the expiration date information 402 acquired at step S608 The Maine controller 213 which distinguishes whether the expiration date of the processing-object data 400 (specifically PDL data 403) has run out (step S609) The date and time of day which are shown using the expiration date information 402 are compared with the current date and the time of day which are shown by the internal timer of a printer 103 (X). A current date and time of day (timing of a processing request) distinguish whether it is over the date and time of day which are shown using the expiration date information 402.

[0233] In step S609, when the expiration date of the processing-object data 400 has run out, expiration is notified to the client machine 104 (X) (step S610), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the expiration date of the processing-object data 400 has not run out, processing from the following step S661 is performed. The processing from the step S661 concerned is the processing by which it is most characterized with the gestalt of this operation.

[0234] In the processing from step S661, the Maine controller 213 chooses the accounting candidate (accounting candidate of a page who should process) corresponding to the PDL data 403 similarly acquired from accounting candidate information 401-(b) acquired at step S608 at step S608 (step S661).

[0235] The Maine controller 213 checks an accounting candidate's credit (step S662). For example, the Maine controller 213 supplies an accounting candidate's information chosen at step S661 to the credit Management Department 307 of a server 102 through the user management section 210, and requests the check of whether the credit of the accounting candidate concerned remains in processing of the processing-object data 400 by the complement.

[0236] When an accounting candidate's credit does not exist as a result of distinction of step S662, it progresses to processing from step S663, and when an accounting candidate's credit exists, it progresses to processing from step S664 mentioned later.

[0237] In the processing from step S663, the Maine controller 213 interrupts processing activation, notifies a purport without a credit residue to the client machine 104 (X) (step S663), and will be in return and the state waiting for a processing demand to step S601.

[0238] In step S662, when an accounting candidate's credit existed and it is distinguished, the Maine controller 213 is supplying the PDL data 403 acquired at step S608 to the PDL interpretation section 212, and is developed to an image image (step S664).

[0239] The Maine controller 213 performs processing of the processing-object data 400 (step S665). With the gestalt of this operation, the processing concerned is equivalent to printing processing. For this reason, for example, the Maine controller 213 is supplying the image image data acquired at step S664 to the print engine 206 through the engine controller 207, and performs printing processing to the image image data concerned.

[0240] The Maine controller 213 updates the value of an accounting candidate's counter by the counter Management Department 308 of a server 102 through the accounting

Management Department 211 (step S666). In connection with this, the residue of an accounting candidate's credit managed at the credit Management Department 307 of a server 102 is also updated.

[0241] The Maine controller 213 is the processing so far, and when the PDL data 403 in the processing-object data 400 distinguish whether the completion of processing was carried out altogether (step S667) and are not yet completed, it performs return and the processing step after this to step S661. And if the PDL data 403 carry out the completion of processing altogether, it will be in return and the state waiting for a processing demand to step S601.

[0242] With the gestalt of <gestalt of the 6th operation> book operation, actuation of a printer 103 (X) is considered as actuation according to the flow chart of drawing 24 in the network system 100 shown in above-mentioned drawing 1 . In addition, in the flow chart shown in above-mentioned drawing 24 , the same sign is given to the step which carries out processing activation like the flow chart shown in above-mentioned drawing 6 , and the detailed explanation is omitted.

[0243] For example, the Maine controller 213 of a printer 103 (X) reads and performs the processing program according to the flow chart of above-mentioned drawing 24 memorized beforehand to the storage means of the primary storage section 204 or secondary-storage section 205 grade. Thereby, a printer 103 (X) operates as follows.

[0244] The Maine controller 213 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S601). It does not change from it until a processing demand is outputted from this condition from which the configuration section (component) of each configuration sections 202-212 on a system bus 201.

[0245] If a processing demand is outputted from which the configuration section (component) of each configuration sections 202-212 on a system bus 201, the Maine controller 213 will distinguish whether the processing demand concerned is data reception by the network adaptor 209 and the protocol analysis section 208 (step S602).

[0246] In step S602, ****** which was data reception by the network adaptor 209 and the protocol analysis section 208, and it mean that a certain processing request from the client machine 104 (X) was made. Therefore, it progresses to processing from step S604 mentioned later in this case. On the other hand, since processings (for example, processing which followed directions from the control unit 202) within a printer 103 (X) are meant when it is not data reception by the network adaptor 209 and the protocol analysis section 208, after performing the processing concerned (step S603), it will be in return and the state waiting for a processing demand to step S601 again.

[0247] In addition, in step S603, although there are various processings as processing performed actually, since it is the processing which does not have direct relation to the effectiveness of this invention, the detailed explanation is omitted.

[0248] In the processing from step S604, the Maine controller 213 performs authentication processing of a user (step S604). User authentication processing here includes the processing for confirming whether the user (processing client) who threw in the data for printing has the activation authority of processing in the client machine 104 (X). Specifically, the Maine controller 213 transmits User Information from the client machine 104 (X) to a server 102 through the user management section 210. A server 102 checks the account information of the user who has managed by user management 309 by

above-mentioned User Information from a printer 103 (X), and returns the status based on the check result.

[0249] The Maine controller 213 distinguishes whether authentication processing was successful by the above-mentioned status returned from the server 102 (step S605).

[0250] In step S605, when authentication processing is successful, it progresses to processing from step S607 mentioned later. On the other hand, when authentication processing goes wrong, advice of authentication failure is published to the client machine 104 (X) which published the processing demand (step S606), and it will be in return and the state waiting for a processing demand to step S601 again.

[0251] In the processing from step S607, the Maine controller 213 performs reception of the data from the client machine 104 (X) (step S607). A network adaptor 209 and the protocol analysis section 208 receive the data transmitted from the client machine 104 (X), and specifically, the Maine controller 213 carries out directions of operation to each of these configuration sections so that a primary storage 204 or a secondary storage 205 may memorize the received data concerned.

[0252] The Maine controller 213 carries out directions of operation to the print data analysis section 202 so that the expiration date information 402 on the data concerned and the accounting candidate information 401 grade which are contained in the data concerned may be separated from the received data (processing-object data 400) memorized to the primary storage 204 or the secondary storage 205 (step S608).

[0253] In addition, about the content of concrete processing of the print data analysis section 203 and its procedure in step S608, depending on the DS of processing-object data, and encoding/decoding method of the data concerned, since it is not the essence of this invention, the detailed explanation is omitted. Moreover, although various processing patterns can be considered when performing the processing concerned after finishing receiving all the packets that received and that perform the processing concerned for each packet of every, or constitute data also about the data reception of step S607 In step S608, if it has guaranteed that required information can be eventually started from received data, any processing patterns can be applied and this invention will be applied in this limitation.

[0254] The Maine controller 213 distinguishes whether the expiration date of the processing-object data 400 (specifically PDL data 403) has run out using the expiration date information 402 acquired at step S608 (step S609). For example, the Maine controller 213 compares the date and time of day which are shown using the expiration date information 402 with the current date and the time of day which are shown by the internal timer of a printer 103 (X), and it distinguishes whether a current date and time of day (timing of a processing request) are over the date and time of day which are shown using the expiration date information 402.

[0255] In step S609, when the expiration date of the processing-object data 400 has run out, expiration is notified to the client machine 104 (X) (step S610), processing is interrupted, and it will be in return and the state waiting for a processing demand to step S601 again. On the other hand, when the expiration date of the processing-object data 400 has not run out, processing from the following step S671 is performed.

[0256] In the processing from step S671, the Maine controller 213 checks an accounting candidate's credit (step S671). For example, the Maine controller 213 supplies the

accounting candidate information 401 acquired at step S608 to the credit Management Department 307 of a server 102 through the user management section 210, and requests the check of whether an accounting candidate's credit shown using the accounting candidate information 401 remains in processing of the processing-object data 400 by the complement.

[0257] When an accounting candidate's credit does not exist as a result of distinction of step S671, it progresses to processing from step S672, and when an accounting candidate's credit exists, it progresses to processing from step S673 mentioned later.

[0258] In the processing from step S672, the Maine controller 213 interrupts processing activation, notifies a purport without a credit residue to the client machine 104 (X) (step S672), and will be in return and the state waiting for a processing demand to step S601.

[0259] In step S671, when an accounting candidate's credit existed and it is distinguished, the Maine controller 213 is supplying the PDL data 403 acquired at step S608 to the PDL interpretation section 212, and is developed to an image image (step S673).

[0260] The Maine controller 213 performs processing of the processing-object data 400 (step S674). With the gestalt of this operation, the processing concerned is equivalent to printing processing. For this reason, for example, the Maine controller 213 is supplying the image image data acquired at step S673 to the print engine 206 through the engine controller 207, and performs printing processing to the image image data concerned.

[0261] The Maine controller 213 updates the value of an accounting candidate's counter by the counter Management Department 308 of a server 102 through the accounting Management Department 211 (step S675). In connection with this, the residue of an accounting candidate's credit managed at the credit Management Department 307 of a server 102 is also updated.

[0262] The Maine controller 213 is the processing so far, and when the PDL data 403 in the processing-object data 400 distinguish whether the completion of processing was carried out altogether (step S676) and are not yet completed, it performs return and the processing step after this to step S671. And if the PDL data 403 carry out the completion of processing altogether, it will be in return and the state waiting for a processing demand to step S601.

[0263] With the gestalt of <gestalt of the 7th operation> book operation, in the network system 100 shown in above-mentioned drawing 1 , actuation of a printer 103 (X) is considered as actuation (refer to above-mentioned drawing 24) with the gestalt of the 6th operation, and the same actuation, and the configuration and actuation of the credit Management Department 307 of a server 102 are performed as follows.

[0264] First, the credit Management Department 307 has also managed information (operating frequency / rate information of accounting) as shown in drawing 25 with the credit information shown in above-mentioned drawing 11 . The credit Management Department 307 has matched and managed a user's operating frequency for every user managed at the counter Management Department 308, i.e., a counter value, and the rate of accounting according to it, as shown in above-mentioned drawing 25 . Therefore, when changing a credit residue by the processing process by a certain user (updating), the amount of credit modification is calculated from the rate of accounting corresponding to the operating frequency (counter value) of the user concerned at the event, and the operating frequency of the user of the operating frequency / rate information of accounting on

above-mentioned drawing 25 concerned.

[0265] In addition, operating frequency / rate information of accounting as shown in above-mentioned drawing 25 are made as [access / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and].

[0266] Moreover, although actuation of the credit Management Department 307 is shown by the flow chart of above-mentioned drawing 12 , the content of processing is as follows.

[0267] The credit Management Department 307 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1201). It does not change from this condition until a certain processing demand is outputted to the credit Management Department 307.

[0268] If a certain processing demand is outputted to the credit Management Department 307, the credit Management Department 307 will distinguish whether the processing demand concerned is an update process demand of a credit residue (step S1202). In being the update process demand of a credit residue as a result of this distinction, it progresses to processing from step S1203, and when that is not right, it progresses to processing from step S1204 mentioned later.

[0269] By processing from step S1203, the credit Management Department 307 updates the credit residue of the applicable user of the credit information shown in above-mentioned drawing 11 in the amount of credit modification asked from the operating frequency (counter value) of the user concerned in this event, and the operating frequency / rate information of accounting of above-mentioned drawing 25 (step S1203). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0270] In step S1202, when the processing required of the credit Management Department 307 is not the updating demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an inquiry processing demand of a credit residue (step S1204). In being the inquiry processing demand of a credit residue as a result of this distinction, it progresses to processing from step S1205, and when that is not right, it progresses to processing from step S1206 mentioned later.

[0271] In the processing from step S1205, the credit Management Department 307 confirms whether the credit required for activation remains using the credit residue of the applicable user of the credit information shown in above-mentioned drawing 11 , the operating frequency of the user in the event, and the operating frequency / rate information of accounting of above-mentioned drawing 25 , and transmits the result to a demand place (step S1205). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0272] In step S1204, when the processing required of the credit Management Department 307 is not the inquiry processing demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is a processing demand by management operation (step S1206). Management operation here points out the editing task of the credit information shown in above-mentioned drawing 11 by the user (manager) with special authority, and the operating frequency / rate information of accounting of above-mentioned drawing 25 . In being the processing demand by

management operation as a result of this distinction, it progresses to processing from step S1207, and when that is not right, it progresses to processing from step S1210 mentioned later.

[0273] In the processing from step S1207, the credit Management Department 307 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1207). When the credit Management Department 307 performs the editing task of the credit information on above-mentioned drawing 11 , and the operating frequency / rate information of accounting of above-mentioned drawing 25 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1208), and it ends normally [the activity concerned], it will be in return and the state waiting for a processing demand to step S1201 again. On the other hand, when it is not a user with an administration right, the credit Management Department 307 notifies the user concerned of an error (step S1209), and will be in return and the state waiting for a processing demand to step S1201 as it is.

[0274] In step S1206, when the processing required of the credit Management Department 307 is not the processing demand by management operation, either, after the credit Management Department 307 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1210), it will be in return and the state waiting for a processing demand to step S1201 again.

[0275] With the gestalt of <gestalt of the 8th operation> book operation, in the network system 100 shown in above-mentioned drawing 1 , actuation of a printer 103 (X) is considered as actuation (refer to above-mentioned drawing 24) with the gestalt of the 6th operation, and the same actuation, and the configuration and actuation of the credit Management Department 307 of a server 102 are performed as follows.

[0276] First, the credit Management Department 307 has managed credit information as shown in drawing 26 instead of the credit information shown in above-mentioned drawing 11 . For the credit information on above-mentioned drawing 26 , it matches with each user's (registered user) ID (user ID), and the multiplier (frequency of the credit decreased by one credit processing) which is equivalent to the rate of accounting with the residue of a user's credit is managed.

[0277] In addition, it is made as [access / from another user or another module / only with the user (manager) or module with which the intermediary also had special authority in credit information as shown in above-mentioned drawing 26 , / it / access or modification is possible and].

[0278] Moreover, although actuation of the credit Management Department 307 is shown by the flow chart of above-mentioned drawing 12 , the content of processing is as follows.

[0279] The credit Management Department 307 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1201). It does not change from this condition until a certain processing demand is outputted to the credit Management Department 307.

[0280] If a certain processing demand is outputted to the credit Management Department 307, the credit Management Department 307 will distinguish whether the processing demand concerned is an update process demand of a credit residue (step S1202). In being

the update process demand of a credit residue as a result of this distinction, it progresses to processing from step S1203, and when that is not right, it progresses to processing from step S1204 mentioned later.

[0281] In the processing from step S1203, the credit Management Department 307 updates an applicable user's credit residue in the credit information shown in above-mentioned drawing 26 based on the multiplier managed corresponding to it (step S1203). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0282] In step S1202, when the processing required of the credit Management Department 307 is not the updating demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an inquiry processing demand of a credit residue (step S1204). In being the inquiry processing demand of a credit residue as a result of this distinction, it progresses to processing from step S1205, and when that is not right, it progresses to processing from step S1206 mentioned later.

[0283] In the processing from step S1205, using each information on the credit residue of the applicable user of the credit information shown in above-mentioned drawing 26 , and the multiplier managed corresponding to it, the credit Management Department 307 judges whether the credit required for processing activation remains, and transmits the result to a demand place (step S1205). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0284] In step S1204, when the processing required of the credit Management Department 307 is not the inquiry processing demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is a processing demand by management operation (step S1206). Management operation here points out the editing task of the credit information shown in above-mentioned drawing 26 by the user (manager) with special authority. In being the processing demand by management operation as a result of this distinction, it progresses to processing from step S1207, and when that is not right, it progresses to processing from step S1210 mentioned later.

[0285] In the processing from step S1207, the credit Management Department 307 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1207). When the credit Management Department 307 performs the editing task of the credit information on above-mentioned drawing 26 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1208), and it ends normally [the activity concerned], it will be in return and the state waiting for a processing demand to step S1201 again. On the other hand, when it is not a user with an administration right, the credit Management Department 307 notifies the user concerned of an error (step S1209), and will be in return and the state waiting for a processing demand to step S1201 as it is.

[0286] In step S1206, when the processing required of the credit Management Department 307 is not the processing demand by management operation, either, after the credit Management Department 307 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1210), it will be in return and the state waiting for a processing demand to step S1201 again.

[0287] With the gestalt of <gestalt of the 9th operation> book operation, in the network system 100 shown in above-mentioned drawing 1 , actuation of a printer 103 (X) is considered as actuation (refer to above-mentioned drawing 24) with the gestalt of the 6th operation, and the same actuation, and the configuration and actuation of the credit Management Department 307 of a server 102 are performed as follows.

[0288] First, the credit Management Department 307 has managed credit information as shown in drawing 27 instead of the credit information shown in above-mentioned drawing 11 . For the credit information on above-mentioned drawing 27 , it matches with each user's (registered user) ID (user ID), and even when a credit residue is lost with the residue of a user's credit, the flag which shows whether continuation of processing activation is permitted (TRUE/FALSE) is managed. The value of the above-mentioned flag shows that continuation of processing activation is permitted, also after, as for "TRUE", a credit residue is set to 0. In this case, about an exceeded part of a credit, the value of a credit residue is managed as a negative value. The value of the above-mentioned flag shows that "FALSE" interrupts processing (accounting and processing of processed data) activation in the phase in which the credit residue became 0.

[0289] In addition, it is made as [access / from another user or another module / only with the user (manager) or module with which the intermediary also had special authority in credit information as shown in above-mentioned drawing 27 , / it / access or modification is possible and].

[0290] Drawing 28 shows actuation of the credit Management Department 307 in the gestalt of this operation. For example, the Maine controller 304 of a server 102 reads and performs the processing program according to the flow chart of above-mentioned drawing 28 memorized beforehand to the storage means of the primary storage section 302 or secondary-storage section 303 grade. Thereby, the credit Management Department 307 operates as follows.

[0291] The credit Management Department 307 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1201). It does not change from this condition until a certain processing demand is outputted to the credit Management Department 307.

[0292] If a certain processing demand is outputted to the credit Management Department 307, the credit Management Department 307 will distinguish whether the processing demand concerned is an update process demand of a credit residue (step S1202). In being the update process demand of a credit residue as a result of this distinction, it progresses to processing from step S1203, and when that is not right, it progresses to processing from step S1204 mentioned later.

[0293] In the processing from step S1203, the credit Management Department 307 updates the credit residue of the applicable user of the credit information shown in above-mentioned drawing 27 (step S1203). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0294] In step S1202, when the processing required of the credit Management Department 307 is not the updating demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an inquiry processing demand of a credit residue (step S1204). In being the inquiry processing demand of a credit

residue as a result of this distinction, it progresses to processing from step S1205, and when that is not right, it progresses to processing from step S1211 mentioned later.

[0295] In the processing from step S1205, the credit Management Department 307 transmits the credit residue of the applicable user of the credit information shown in above-mentioned drawing 27 to a demand place (step S1205). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0296] In step S1204, when the processing required of the credit Management Department 307 is not the inquiry processing demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an inquiry processing demand of the value of the flag in the credit information shown in above-mentioned drawing 27 (step S1211). In being an inquiry processing demand of the value of a flag as a result of this distinction, it progresses to processing from step S1212, and when that is not right, it progresses to processing from step S1206 mentioned later.

[0297] In the processing from step S1212, the credit Management Department 307 transmits the value of the flag of the applicable user of the credit information shown in above-mentioned drawing 27 to a demand place (step S1212). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0298] In step S1211, when the processing required of the credit Management Department 307 is not an inquiry processing demand of the value of a flag, the credit Management Department 307 distinguishes whether the processing demand concerned is a processing demand according [the processing demand concerned] to management operation (step S1206). Management operation here points out the editing task of the credit information shown in above-mentioned drawing 27 by the user (manager) with special authority. In being the processing demand by management operation as a result of this distinction, it progresses to processing from step S1207, and when that is not right, it progresses to processing from step S1210 mentioned later.

[0299] In the processing from step S1207, the credit Management Department 307 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1207). When the credit Management Department 307 performs the editing task of the credit information on above-mentioned drawing 27 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1208), and it ends normally [the activity concerned], it will be in return and the state waiting for a processing demand to step S1201 again. On the other hand, when it is not a user with an administration right, the credit Management Department 307 notifies the user concerned of an error (step S1209), and will be in return and the state waiting for a processing demand to step S1201 as it is.

[0300] In step S1206, when the processing required of the credit Management Department 307 is not the processing demand by management operation, either, after the credit Management Department 307 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1210), it will be in return and the state waiting for a processing demand to step S1201 again.

[0301] With the gestalt of <gestalt of the 10th operation> book operation, in the network system 100 shown in above-mentioned drawing 1 , actuation of a printer 103 (X) is considered as actuation (refer to above-mentioned drawing 24) with the gestalt of the 6th operation, and the same actuation, and a configuration and actuation of the user management section 309 of a server 102 and the credit Management Department 307 are performed as follows.

[0302] First, drawing 7 has managed User Information as shown in drawing 29 instead of User Information which showed the user management section 309 to above-mentioned drawing 7 . In User Information of above-mentioned drawing 29 , it matches with each user's (registered user) ID (user ID) and password, and the flag which shows whether assignment of a credit is received from others (TRUE/FALSE) is managed. The value of the above-mentioned flag shows that "TRUE" accepts assignment of the credit from others, and the value of the above-mentioned flag shows that "FALSE" refuses assignment of the credit from others.

[0303] In addition, it is made as [access / about User Information as shown in above-mentioned drawing 29 , / from another user or another module / only with a user (manager) or a module with special authority, / it / access or modification is possible and]. Moreover, although actuation of the user management section 309 in the gestalt of this operation is shown by the flow chart shown in above-mentioned drawing 8 , it turns into processing actuation which uses User Information of above-mentioned drawing 29 instead of User Information of above-mentioned drawing 7 .

[0304] Drawing 30 shows actuation of the credit Management Department 307 in the gestalt of this operation. For example, the Maine controller 304 of a server 102 reads and performs the processing program according to the flow chart of above-mentioned drawing 30 memorized beforehand to the storage means of the primary storage section 302 or secondary-storage section 303 grade. Thereby, the credit Management Department 307 operates as follows.

[0305] The credit Management Department 307 will be in the state waiting for a processing demand immediately after this processing activation initiation (step S1201). It does not change from this condition until a certain processing demand is outputted to the credit Management Department 307.

[0306] If a certain processing demand is outputted to the credit Management Department 307, the credit Management Department 307 will distinguish whether the processing demand concerned is an update process demand of a credit residue (step S1202). In being the update process demand of a credit residue as a result of this distinction, it progresses to processing from step S1203, and when that is not right, it progresses to processing from step S1204 mentioned later.

[0307] In the processing from step S1203, the credit Management Department 307 updates the credit residue of the applicable user of the credit information shown in above-mentioned drawing 11 (step S1203). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0308] In step S1202, when the processing required of the credit Management Department 307 is not the updating demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an inquiry processing

demand of a credit residue (step S1204). In being the inquiry processing demand of a credit residue as a result of this distinction, it progresses to processing from step S1205, and when that is not right, it progresses to processing from step S1221 mentioned later.

[0309] In the processing from step S1205, the credit Management Department 307 transmits the credit residue of the applicable user of the credit information shown in above-mentioned drawing 11 to a demand place (step S1205). Then, the credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again.

[0310] In step S1204, when the processing required of the credit Management Department 307 is not the inquiry processing demand of a credit residue, the credit Management Department 307 distinguishes whether the processing demand concerned is an assignment processing demand of a credit (step S1221). In being the assignment processing demand of a credit as a result of this distinction, it progresses to processing from step S1222, and when that is not right, it progresses to processing from step S1206 mentioned later.

[0311] By processing from step S1222, the credit Management Department 307 makes demands on the user concerned for the input of a password, in order that the user (processing client) of a demand place may check whether you are a principal (step S1222), and it performs authentication processing by comparing the password obtained as a result with the password of the applicable user of User Information shown in above-mentioned drawing 29 (step 1223).

[0312] When it succeeds in authentication at step S1223, the credit Management Department 307 After checking that the flag set up to the applicable user in User Information of above-mentioned drawing 29 is "TRUE", Processing which moves the amount of credits shown by the demand concerned of the credit residues set up to the applicable user in the credit information on above-mentioned drawing 11 to a phase hand's credit shown by the demand concerned is performed (step S1224). In addition, when the above-mentioned flag is "FALSE", assignment processing at step S1224 is failing. Moreover, also when there are more amounts of credits (the amount of credits shown by the demand concerned) which it was going to transfer than the credit residue set up in the credit information on above-mentioned drawing 11 , assignment processing at step S1224 is failing.

[0313] When authentication at step S1223 goes wrong, the credit Management Department 307 notifies the user concerned of an error (step S1225).

[0314] The credit Management Department 307 will be in return and the state waiting for a processing demand to step S1201 again after step S1224 or processing of S1225.

[0315] In step S1221, when the processing required of the credit Management Department 307 is not the assignment processing demand of a credit, the credit Management Department 307 distinguishes whether the processing demand concerned is a processing demand according [the processing demand concerned] to management operation (step S1206). Management operation here points out the editing task of the credit information shown in above-mentioned drawing 11 by the user (manager) with special authority. In being the processing demand by management operation as a result of this distinction, it progresses to processing from step S1207, and when that is not right, it progresses to processing from step S1210 mentioned later.

[0316] In the processing from step S1207, the credit Management Department 307 distinguishes whether you are the user to whom the processing client has the activation authority (administration right) of management operation (step S1207). When the credit Management Department 307 performs the editing task of the credit information on above-mentioned drawing 11 according to the directions from the user concerned when it is a user with an administration right as a result of this distinction (step S1208), and it ends normally [the activity concerned], it will be in return and the state waiting for a processing demand to step S1201 again. On the other hand, when it is not a user with an administration right, the credit Management Department 307 notifies the user concerned of an error (step S1209), and will be in return and the state waiting for a processing demand to step S1201 as it is.

[0317] In step S1206, when the processing required of the credit Management Department 307 is not the processing demand by management operation, either, after the credit Management Department 307 regards it as what is the demand (activation request of operation) of the processing not existing and performs error processing (step S1210), it will be in return and the state waiting for a processing demand to step S1201 again.

[0318] In addition, it cannot be overemphasized by the object of this invention supplying the storage which memorized the program code of the software which realizes the host of the gestalt of the 1st - the 10th operation, and the function of a terminal to a system or equipment, and reading and performing the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage that it is attained. In this case, the program code itself by which reading appearance was carried out from the storage will realize the function of the gestalt of the 1st - the 10th operation, and the storage which memorized that program code will constitute this invention. As a storage for supplying a program code, the memory card of ROM, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, and a non-volatile etc. can be used. Moreover, it cannot be overemphasized by performing the program code which the computer read that it is contained also when the function of the gestalt of the 1st - the 10th operation is not only realized, but it performs a part or all of processing that OS which is working on a computer is actual, based on directions of the program code and the function of the gestalt of the 1st - the 10th operation is realized by the processing. Furthermore, after the program code by which reading appearance was carried out from the storage was written in the memory with which the functional expansion unit connected to the extension board inserted in the computer or the computer is equipped, It cannot be overemphasized that it is contained also when a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped is actual is performed based on directions of the program code and the function of the gestalt of the 1st - the 10th operation is realized by the processing.

[0319]

[Effect of the Invention] Since accounting can carry out based on the accounting candidate information added to processing-object data according to this invention as explained above, an accounting candidate is changeable according to a situation by the user (processing client) who requested data processing actually, and other users. Therefore, even if it is complicated and is the case where the accounting system which was rich in flexibility is

built, sufficient accounting function can be offered.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] In the gestalt of the 1st operation, it is the block diagram showing the configuration of the network system which applied this invention.

[Drawing 2] It is the internal configuration **** block diagram of the printer of the above-mentioned network system.

[Drawing 3] It is the internal configuration **** block diagram of the server of the above-mentioned network system.

[Drawing 4] It is drawing for explaining an example of the format of the processing-object data (data for printing) in the above-mentioned network system.

[Drawing 5] It is drawing for explaining an example of the accounting contrast person information on the above-mentioned processing-object data.

[Drawing 6] It is a flow chart for explaining actuation of the above-mentioned printer.

[Drawing 7] It is drawing for explaining an example of User Information managed by the user management section of the above-mentioned server.

[Drawing 8] It is a flow chart for explaining actuation of the above-mentioned user management section.

[Drawing 9] It is drawing for explaining an example of the counter information managed by the counter Management Department of the above-mentioned server.

[Drawing 10] It is a flow chart for explaining actuation of the above-mentioned counter Management Department.

[Drawing 11] It is drawing for explaining an example of the credit information managed by the credit Management Department of the above-mentioned server.

[Drawing 12] It is a flow chart for explaining actuation of the above-mentioned credit Management Department.

[Drawing 13] In the gestalt of the 2nd operation, it is a flow chart for explaining actuation of the above-mentioned printer.

[Drawing 14] In the gestalt of the 3rd operation, it is a flow chart for explaining actuation of the above-mentioned printer.

[Drawing 15] In the gestalt of the 3rd operation, it is drawing for explaining an example of the above-mentioned accounting candidate information.

[Drawing 16] In the gestalt of the 4th operation, it is the block diagram showing the configuration of the above-mentioned server.

[Drawing 17] In the gestalt of the 4th operation, it is drawing for explaining an example of the management information in the data ID Management Department of the above-mentioned server.

[Drawing 18] In the gestalt of the 4th operation, it is the block diagram showing the configuration of the above-mentioned printer.

[Drawing 19] In the gestalt of the 4th operation, it is drawing for explaining an example of the above-mentioned processing-object data.

[Drawing 20] In the gestalt of the 4th operation, it is a flow chart for explaining actuation

of the above-mentioned printer.
[Drawing 21] In the gestalt of the 4th operation, it is a flow chart for explaining actuation of the data ID Management Department of the above-mentioned server.
[Drawing 22] In the gestalt of the 5th operation, it is a flow chart for explaining actuation of the above-mentioned printer.
[Drawing 23] In the gestalt of the 5th operation, it is drawing for explaining an example of the above-mentioned accounting candidate information.
[Drawing 24] In the gestalt of the 6th operation, it is a flow chart for explaining actuation of the above-mentioned printer.
[Drawing 25] In the gestalt of the 7th operation, it is drawing for explaining the information (operating frequency / rate information of accounting) managed with the above-mentioned credit information at the above-mentioned credit Management Department.
[Drawing 26] In the gestalt of the 8th operation, it is drawing for explaining the above-mentioned credit information managed at the above-mentioned credit Management Department.
[Drawing 27] In the gestalt of the 9th operation, it is drawing for explaining the above-mentioned credit information managed at the above-mentioned credit Management Department.
[Drawing 28] In the gestalt of the 9th operation, it is a flow chart for explaining actuation of the above-mentioned credit Management Department.
[Drawing 29] In the gestalt of the 10th operation, it is drawing for explaining above-mentioned User Information managed in the above-mentioned user management section.
[Drawing 30] In the gestalt of the 10th operation, it is a flow chart for explaining actuation of the above-mentioned credit Management Department.
[Description of Notations]
100 Network System
101 Network
102 Server
103 (1), 103 (2), 103 (3) Printer
104 (1), 104 (2), 104 (3) Client
201 System Bus
202 Control Unit
203 Print Data Analysis Section
204 Primary Storage Section
205 Secondary-Storage Section
206 Print Engine
207 Engine Controller
208 Protocol Analysis Section
209 Network Adaptor
210 User Management Section
211 Accounting Management Department
212 PDL Interpretation Section

213 Maine Controller
302 Primary Storage Section
303 Secondary-Storage Section
304 Maine Controller
305 Network Adaptor
306 Protocol Analysis Section
307 Credit Management Department
308 Counter Management Department
309 User Management Section
310 System Bus

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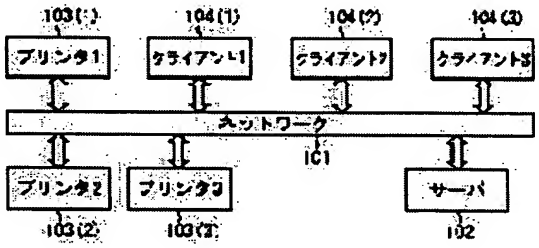
(54) INFORMATION PROCESSOR, NETWORK SYSTEM, CHARGING METHOD, DATA PROCESSING CONTROLLING METHOD AND STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a network system capable of providing a sufficient charging function even in the case of constructing a highly complicated and flexible charging system.

SOLUTION: A printer 103 (X) executes data processing requested by a client 104 (X), and also executes charging processing for the execution of the data processing to a charged object person shown with charged object person information attached to processing object data from the client 104 (X) by the device 103 (X) or a server 102.



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